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Original Articles

THE FUTURE OF MILK SUPPLIES OF LARGE CITIES FROM A SANITARY STANDPOINT *

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To the milk dealers themselves I have long been convinced we must look for a practical solution of our great problem—proper milk supplies for our large cities.

The milk dealer of to-day occupies a unique position in the commercial world. He traffics in a product which is one of our most important food-stuffs, bringing blessings to millions of people when properly produced, carefully handled and distributed, but which, when coming from unhealthy and insanitary sources and when carelessly handled, is capable of spreading disease and misery. His difficulties are increased by the fact that, although he scarcely has anything more than a superficial oversight or control over the production of his supplies, he is held to strict accountability for their purity and wholesomeness.

The dealer in large cities in the past was nothing more than a common carrier, purchasing his supply in the country wherever convenient and shipping it to the crowded centers and there distributing it without the knowledge or opportunity of anything but the most primitive control by tests.

So dependent is the public on milk and so easy is it to reduce its food value by manipulation, either by the addition of water or the removal of cream, or both, without ready detection by the consumer, that it was early recognized by the authorities that some system of regulation must be established. The first effort was the adoption of a standard of purity referring entirely to a consideration of the quantitative constitution; that is, the food value, based not on the average composition of pure milk, but on the poorest that can be produced under ordinary conditions.

As the population of cities increased and the adjacent farms became more valuable, the dairy farms were crowded out to greater and greater distances, creating new and difficult transportation problems. For purely business reasons it became necessary to improve the methods of collecting and shipping milk so that it would not spoil by souring before delivery to the consumer.

Before discussing the requirements of milk supplies of the future, let us briefly review conditions as they now exist, the changes which have been brought about during the last few years and the factors which caused them.

* Read at the meeting of the International Milk Dealers' Association held in Milwaukee, Wis., Oct. 18, 1909.

CONDITIONS IN NEW YORK

It has occurred to me that a recital of the New York City conditions, with which I am most familiar, would illustrate what is going on in other cities, with such variations as would be incident to differences in population and local conditions.

In the year 1902 the New York City Department of Health inaugurated a comprehensive investigation into the conditions surrounding the production, transportation and vending of the milk supply. The findings were about the same as is experienced in any large city. The market milk was, from the sanitary point of view, as a rule, in wretchedly bad condition, due to ignorance and lack of care in production, which was carried on practically without any supervision. Many creameries were found poorly constructed and still more poorly managed; milk was not properly iced during transportation, bottles and cans were only superficially cleansed, milk was often kept in unclean stables in the city, was dipped from cans in dusty streets, was kept in stores with insanitary surroundings and often adjoining bedrooms. In fact, milk was produced and handled under conditions which tended toward an unclean, unwholesome product.

The authorities at once set about to improve the supply in all directions pointed out, but it was not until several years later that it was possible to make the comprehensive country inspections at dairy farms that are now being so admirably carried out, resulting in such marked improvements.

The state authorities have done practically nothing during the last years to improve the sanitary conditions under which market milk is produced and transported. They have confined their activities mainly to the regulations of adulterations and the supervision of diseases among cattle.

While New York City has not the legal authority to make inspections outside of the city limits, the fact that its health department has in force a license system for milk dealers and that no milk can be sold without such license gives indirectly the necessary power. A city milk dealer may have his license revoked unless his patrons permit inspection and follow out orders for improvement as a result of such inspections. The plan is working out well, most farmers are gradually complying with instructions and the more intelligent of them are well satisfied with the benefits derived. Probably the most serious matter that has come up in this connection has been the fact that it has been usually not possible for the farmer to realize an extra compensation for the increased and improved plant and additional labor of production. We are in a transition stage; all reforms work some hardships.

The matter of an increase in the price that the farmer must receive for his milk when properly produced is one

that must soon be settled; it will become more and more urgent. I am not unmindful in this connection that some dealers are on their own initiative paying special prices, but this is as yet by no means the universal practice. One of the principal reasons for this is the general unwillingness on the part of the public to appreciate the value and to pay an additional price for a better milk supply, in which position they are unfortunately upheld by the daily press. I am confident that when the improvements are more universal and the conditions are thoroughly understood the public will be willing to pay a fair price for wholesome milk of good quality. Some progress has been made in this respect in the introduction of the certified, inspected and scientifically pasteurized grades of milk.

When those interested in reducing the very high death rate of infants in our city found what is probably true of every large city in the world, that the general milk supply, the market milk, was unfit for use for feeding babies, an agitation of reform was begun which is bearing good fruit. But we are yet in the stage of a mere beginning; the surface has been only slightly scratched.

As in all great movements of reform, there is no agreement as to the methods to be employed. Without at this time going into details with which you are all familiar, it may be said that there was a general agreement as to what the unsatisfactory condition of our milk supply was, and to what it was due, but there were wide differences of opinion as to the best remedial methods.

At the time of the investigation there were the following grades of milk on the New York market:

Certified milk (Milk Commission)—Sold in bottles at from 12 to 15 cents per quart, probably less than 1 per cent. of the supply. Bacteria standard of not over 30,000 per c.c.

Bottled milk—special milk and so-called baby milk; highest price 9 cents per bottle. No bacteria standard, usually 4 to 5 per cent. fat.

Bottled milk—ordinary market milk of good grade; from 3½ to 4 per cent. fat; no bacteria standard; bacteria usually very high. Price, 8 cents.

Bottled milk—selling at 7 cents a quart; about 3¼ per cent. fat, with bacteria very high.

So-called loose milk, brought to the city in 40-quart cans and retailing from 4 to 7 cents a quart, ranging from 3 to 4 per cent. in fat, with bacteria in variable numbers, usually very high.

Modified milk and pasteurized milk for infant feeding could also be obtained at certain stations maintained by Mr. Nathan Straus.

One milk dealer supplied commercially pasteurized milk without designation or special claims.

Our general milk supply was unsatisfactory for the following reasons:

With the exception of the certified milk and modified milk, the supply was entirely unsuited for infant feeding on account of high bacteria count; that is, it was not clean; much of the supply arrived in the city at a temperature above 65 F. and during the summer months would readily sour. The insanitary conditions surrounding its production and the careless and frequent handling, with personal contact, endangered the supply with possible infection from scarlet fever, diphtheria and typhoid fever.

I think it is fair to say that had it not been for the insistence on better supplies for the babies the improvement of the general supply would have found little support and the solution of the problem would have been postponed for no one knows how long. Although epidemics of the above-mentioned diseases have each year been traced to infected milk supplies, great interest in improvement was not aroused until the cause of the frightful infant death rate was brought home. The influence of the work of the Certified Milk Commission has been of first importance, although the total output of such milk is still an almost negligible quantity as compared with the total supply. It soon became evident that certified milk could never be the solution of the great problem of safe milk for the babies at large on account of the high price of production. Nor did it seem feasible to rely on its general use to safeguard the public against the spread of certain infectious diseases. On account of these considerations, and largely for purely commercial reasons, the milk dealers of our city began to apply the process of heating milk, producing what is known as commercially pasteurized milk, a continuous process by which milk is heated to a temperature usually from 140 to 160 F. for a few seconds.

I am one among those who at that time strongly urged pasteurized milk, and briefly for the following reasons: The dealer was being held strictly responsible for the product he sold. In the case of the larger ones, their business had grown to such proportions that anything like strict supervision of control of the production was out of the question. While some have exercised such control thoroughly for years, others have grown up without it, apparently with the sanction of the authorities, at any rate without interference on their part.

Milk supplies of large cities cannot be shut off while experiments are being made as to the best methods of improvement. I was aware that tuberculosis was very common among dairy herds, that it was recognized that there was some danger of infection from this source, that the practical elimination of this disease from the herds could not be accomplished in many years, and that practically nothing was being done in that direction by the authorities. The excellent system of inspection of the farms, while very valuable, could, in my opinion, not for a long time, if ever, be so thorough as to eliminate danger of transmission of typhoid fever, scarlet fever and diphtheria from milk. It seemed that the conditions warranted safeguarding by treatment where original purity was unattainable. At the same time, attention was called to the necessity of correcting the evils at the point of production.

Our city was now aroused over the milk question and a bitter controversy was waged between two factions as to the best means to secure safe milk; some maintaining that the best and only solution was the production of clean, raw milk, as typified by certified milk, and others claiming that the remedy must be a more immediate one than is possible by clean raw milk production; that is, that pasteurization must be resorted to. Much has been produced by very able writers on the subjects of clean, raw milk and pasteurized milk and I could probably add nothing now, but I will state briefly what I believe to be the principles involved and the stand which, in my opinion, the dealers should take both from the viewpoint of the public health and in their personal interests, which are in this case identical.

The duty of the milk dealer is clear to me. It is to supply the quality of milk which is approved by those disinterested physicians and sanitarians who have made a special study of the requirements of infants and invalids and who are familiar with public-health problems in their broadest application.

In the light of present knowledge on the subject, it would appear that a dealer should not be satisfied to offer the public any milk unless it be clean and safe,

either a clean high-grade market milk, scientifically pasteurized, or a clean, raw milk of low bacterial count from healthy animals.

THE IMPORTANT PROBLEM

It must have occurred to others, as it has so strikingly to me, that more rapid progress could be made if we realized that the babies' milk problem is the more important and should be regulated first and separate from that of the general supply. The requirements are so much more exacting for infant milk, and it having been so well established that this grade of milk is very materially more expensive to produce and commands a higher price than can ordinarily be demanded for milk for general use, that it seems wise to separate the two problems.

There is much to be said in favor of the establishment of infants' milk depots, where not only the best infant milk should be dispensed, but where much can be done to educate the mothers in the care of their little ones from various standpoints. My own opinion is that, while theoretically the best milk for these depots would be the certified type, the expense is so great that, in order to do the most good to the greatest numbers, it should not only be permissible, but good sense to use a good, clean, scientifically pasteurized milk.

For some time at least such infant milk depots will probably be established and maintained by charitable associations and possibly under municipal control. There is strong agitation for both forms in our city. I think it is very unfortunate that the feeling exists that our dealers are not able or willing to supply the grades of milk required for such depots. To my mind, such grades of milk should be supplied by all large dealers wherever they offer milk to the public. In other words, it is a function which the dealer should exercise as part of his regular business.

I fear that there is the temptation for the dealer to be unwilling to admit that his ordinary market milk is not a fit food for infants, when, as a matter of fact, there is not a city in the world whose regular milk supply is suitable for such purpose, and it seems very unlikely that it can ever be brought to that standard. In discussing the details of future milk supplies, I will revert to this and give my ideas of how the supplies should be graded. The high standard set by the Milk Commission, their severe restrictions as to type of buildings, the extreme cleanliness demanded in every step of production of milk from the washing of the udders of the cow to the sterilization of utensils, with the necessarily large initial outlay entailed and the increase in running expenses, while having a most marked beneficial effect on the whole dairy industry, is rather discouraging to the small producer of market milk; it all seems so impossible to him, considering the small value placed on his product. It must be made clear to him that not all milk need be produced under such conditions, and that a good, wholesome, clean milk can be made in simply constructed barns if kept clean and with care in every step of handling. Much good work in this direction can be done by the dealer, either independently, or when official supervision is at all exercised in connection therewith.

PURE MILK AND PASTEURIZED MILK

During the last few years the public has been pretty thoroughly advised on all matters pertaining to clean milk and pasteurized milk. Every one recognized the necessity of clean milk, but more and more are won over to see the absolute necessity under the present conditions in large cities of pasteurization. All admit that the ideal milk is that from healthy animals produced under strictly cleanly conditions and properly transported and rendered in clean sealed packages; also that it is impossible to obtain such milk generally now, and that it will be for a long time to come.

It has been scientifically demonstrated that the heating of milk to a temperature of 145 to 150 F. for thirty minutes (pasteurization) will kill all the ordinary germs which may occur in milk and most of the other germs that are considered harmless but which cause deterioration and entail financial loss. As only a very slight deterioration, if any, is effected by such treatment (it is claimed by some that the milk is slightly less digestible) there is no good reason why pasteurization should not be generally applied and even required for all milk not otherwise known to be absolutely safe. I think the most serious objection to the general introduction of pasteurization is that it is possible for selfish dealers to treat otherwise unmarketable milk and make it salable. This can and should be overcome by strict regulations and the conscientious dealer will strive to improve his supply just as rigidly in the case of the milk which is to be pasteurized as that which is offered raw. The movement for clean milk must not be retarded by the introduction of pasteurization.

Under existing conditions no large dealer, to my mind, can afford to supply milk in large cities unless it is either of the certified type, guaranteed or inspected, or scientifically pasteurized. New conditions are forcing great changes in the character of conducting a large milk business. The dealer, to be successful, up to date and progressive, requires more and more scientific help; he needs the veterinarian to inspect his patrons' cattle, to assist in the elimination of diseased animals, both for the protection of the herds and in the interest of public health. The chemist and bacteriologist are needed to supervise the control over the supply, by constant tests of quality and bacteria tests for cleanliness. Old methods of hand washing of cans and bottles are being supplanted by modern machines, using hot water and cleansing powders, whose efficiency should be constantly controlled by scientific tests, supplies being examined, as the dealer can no longer afford to purchase at haphazard.

It has been interesting to me to see the growth of the application of this scientific work among the milk dealers. I have in mind one prominent member of your Association who, a few years ago, hardly knew that milk contained bacteria and who now daily scans the bacteriologic test sheets of his various supplies as keenly as does the stock broker his ticker tape. It is these men who are going far beyond the official requirements whose influence on the whole problem cannot be overestimated. These conditions make for concentration, a gradual absorption of the small and often incompetent men into larger concerns and will bring about what the press is pleased to term the "milk trusts."

It is an evolution that we see going on about us in every line of business. In the milk business my observation is that it is working out to the great benefit of the public. It is not conceivable that there can be ever any danger of a harmful combination among producers of milk. What, then, will be the requirements of our future milk supplies of large cities from a sanitary standpoint?

FUTURE MILK SUPPLIES

Milk production, transportation and distribution will be under strict control, federal, state and municipal.

Every farm producing milk for sale will operate under a permit. This will place the production of milk intended for use in condenseries, butter and cheese factories, under the same control as market milk, thus preserving the economic balance which under present conditions is uncontrolled and operates as a very unjust and disturbing factor in their milk business. Not only will there be the strictest requirement as to cleanliness in all operations, but producers will be taught methods by which the results can be obtained in the most economical manner. The great difficulties in procuring proper labor on the dairy farms will probably stimulate the use of improved milking machines. When farmers are taught how to produce the maximum amount of milk from herds and the best methods of feeding, many of the farms now either abandoned or only partly used will become flourishing dairy farms and our cities will not be required, as now, to reach out hundreds of miles and into other states for their supplies. All milk will be bought at the creameries on the butter-fat test, the only fair means to both parties of determining its value, thereby encouraging the production of the best grades.

Creameries will be of the most approved type as to construction and equipment and will be permitted to standardize milk, the only means the dealer has of selling milk on its merits. He will be permitted to sell every grade of milk from skim milk to cream, provided he truthfully labels the same and they are clean and safe. Only refrigerator cars will be used in the transportation of milk, which will be in sealed containers, preferably the single-service packages.

All dipping of milk will be forbidden; where milk is permitted to be drawn in stores, it must be from sealed containers from some form of spigot and delivered to the customer in single-service packages.

The grades of milk will be as follows:

Infants' Milk.—Distributed from infants' milk depots and by dealers. Certified milk, raw. Clean milk from tested cattle, pasteurized. Modified milk made from either of the above grades.

Family Milk.—Clean, raw milk from tuberculosis-free herds. Clean pasteurized milk from such herds. Clean skim milk, raw or unpasteurized. All cream, except that from certified or guaranteed milk, to be pasteurized and sold according to the amount of butter fat it contains. The present unregulated sale of cream without standards is an encouragement to adulteration by the addition of thickening agents, working great hardships to the honest dealers.

Milk from untested herds will be permitted to be sold when properly pasteurized, as well as milk from cows which have been tuberculin tested and have reacted, but which it has not been deemed necessary to destroy.

Dealers should not only prepare themselves for the changes outlined, which every student of the matter will agree are in the main inevitable, but they should in their own interest be foremost in bringing them about, placing the business on a sound scientific footing, when the periodic and to the trade very disturbing public agitations will be unnecessary. I look forward to your organization being foremost in this great advance movement.

A very necessary corollary to make these new conditions economically successful (and otherwise they can have no permanency) is that the public must be educated to the appreciation of their value. It will inevitably result in higher prices paid to the farmer and a general advance in the cost of milk to the public, but it will also mean fewer deaths among babies, healthier and stronger children and practical elimination of danger of the spread of tuberculosis, typhoid fever and scarlet fever through milk, achievements all worthy of every one's best efforts.

39 West Thirty-eighth Street.

THE SPIROCHÆTA PALLIDA: ITS DIAGNOSTIC SIGNIFICANCE *

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Ever since, in 1905, the relationship of the *Spirochæta pallida* to syphilis was discovered by Schaudinn and Hoffmann, its presence in the various manifestations of this disease has been demonstrated with increasing frequency, certainty and ease, until to-day there are but few types of lesion which have failed to show these micro-organisms.

It is not my purpose, nor is it necessary, to bring forward once more the various grounds for belief in the *Spirochæta pallida* as the cause of syphilis. So much favor have these reasons found that one is rather in danger of overlooking the loopholes in the argument, and it is not perhaps untimely to remember such facts as Schereschewsky's[1] failures in inoculating his cultures and the doubts which in consequence occurred to his own mind as to the validity of the claims of the *Spirochæta pallida*. Nevertheless, in all the work that has been done, there is one fact which stands pre-eminent, namely, that with amazing frequency, more especially in the primary, secondary and early congenital lesions, and also to a limited degree in the later manifestations, do we find the *Spirochæta pallida*, while *per contra* no non-syphilitic lesion has served to furnish micro-organisms which cannot with care and skill be distinguished from these.

Relying on this fact, the importance of the presence of the *Spirochæta pallida*, as a diagnostic aid, becomes at once apparent, though as yet but little in the literature has appeared to emphasize this point of view, most writers dealing with the more purely bacteriologic or parasitologic aspect. To the practical syphilologist the practical value of the fact remains and it is more especially this aspect of the question that I would emphasize here.

The work outlined below was originally undertaken, however, not from any practical standpoint, but with the desire to confirm or question what seemed to me the more extravagant claims as to the presence of this organism; and it was only as time progressed that the practical value of routine examination became more apparent.

MATERIAL

The period covered, including all cases, represents two years or more; but as, unfortunately, my earlier records, with a very few exceptions, were lost, I have had to confine myself almost entirely to those cases coming under

* From the Pathological Laboratory of the Montreal General Hospital.

1. Schereschewsky, J.: Züchtung der *Spirochæta pallida*, Deutsch. med. Wchnschr., 1909, xxxv, 835, 1260.

observation during the six months prior to Sept. 30, 1909. The material has been gathered, in the main, from my own clinic (Montreal General Hospital) and that of my associate, Dr. W. L. Barlow, who, with Dr. F. S. Patch, is largely responsible for the results enumerated here. A number of cases were also examined from other outpatient clinics and from the hospital wards, and a few cases are added from private sources.

METHODS

The methods of examination have varied. In the beginning the older Giemsa stain was employed; later several modifications of this, one of which (fixation by osmic acid vapor and staining by gently warming Giemsa's newer one-solution stain) gave excellent smears in three minutes. In some cases of anal condyloma and of chancre we excised portions and stained by Levaditi (old method), and in congenital fetal and infantile autopsy material this method was also used. We have tested the India-ink method of Burri[2] for making unstained smears, but as to its efficiency in diagnosis I am not able to speak; certainly good smears are obtainable.

In all our later cases, however, we have made use of the dark-field illumination with most satisfactory results. It is easy, rapid and allows a large amount of material to be thoroughly examined and shows in general a larger number of organisms than do stained smears. We were careful originally to compare the results obtained by stain and dark stage, and, while in one instance the spirochetes were found by stain and not by dark stage, in a number of cases the reverse occurred.

The danger of confusing *Spirochæta pallida* with other spirochetes (for example, the *Spirochæta dentium* and the *Spirochæta pseudopallida*, so called) has been avoided by first thoroughly removing the superficial débris and obtaining the serum from the raw clean surface—even making an incision in the case of chancre. Under these circumstances the serum may contain red blood cells, but is free from surface contamination. Second, we have paid the usual attention to the length, breadth, number and angle of the spirals. In stained smears the staining qualities were also considered. In gland puncture contamination does not occur. In skin lesions we generally made use of a Bier cupping-glass, which delivers an abundance of clear serum.

The essential point is that one must obtain the material, not from the surface, but from the deeper parts of the lesion, and therefore from parts less likely to show contamination.

INCIDENCE OF SPIROCHÆTA PALLIDA IN VARIOUS LESIONS

In the course of this investigation we have examined some 197 lesions in 143 individuals. Of these 197 lesions, 167 were syphilitic and occurred in 114 cases of syphilis, while 30 were cases of various mouth, skin and genital lesions other than syphilitic. These embraced chancroid, gonorrheal condyloma, herpes, psoriasis, chicken-pox, tubercular papilloma, aphthous stomatitis, Vincent's angina, normal tonsils, etc.; indeed, to this list should be added many more cases in which definite records were not kept. The statement that these cases were definite non-syphilitic cases is open to question only in the case of certain chancroids which are phenomenally deceptive. All such cases have been observed for at least four months, however, and we feel justified in considering them true non-syphilitic lesions. These 30 cases all yielded negative results.

2. Burri: Wien. klin. Wchnschr., July 1, 1909.

Of the 114 cases of syphilis examined, positive results were obtained from some lesion in 102, negative findings in 12. Of these 12, however, 6 were tertiary cases, 2 were old nearly healed chancres just disappearing under treatment, 1 was the case of a syphilitic fetus whose mother had been thoroughly treated previous to its birth, 1 was an early and single attempt in the case of a primary sore, 1 was a gland puncture, and 1 was a lesion doubtfully syphilitic though in a definite case of secondary syphilis.

Considering the findings per lesion rather than per individual, the results are not quite so good. (Here it is perhaps unnecessary to state that lesions of a similar type occurring in the same individual are enumerated as but a single lesion, e. g., a mucous patch of the tongue and another of the fauces—a single lesion; but a mucous patch in the mouth and a papule on the buttock are enumerated as two lesions.) One hundred and sixty-seven lesions yielded 140 positive results and 27 negative. Of the 27 negative findings, 6 occurred in chancres, 5 in gland puncture, where I confess our results have disappointed us. One was a doubtful lesion, though in a syphilitic; 2 occurred in old mucous patches, the patients being under treatment (single attempt); 6 occurred in skin lesions of the more squamous type; 6 occurred in tertiary cases and 1 in the congenital case of the fetus above referred to. These findings are also given in the accompanying table.

FINDINGS OF SPIROCHÆTA PALLIDA IN SYPHILITIC AND NON-SYPHILITIC CASES

	Lesion.	No. Cases.	Spirochæta Pallida. Positive	Spirochæta Pallida. Negative
Primary.	Adenitis	8	3	5
	Chancre	33	27	6
Secondary	Moist papules and flat condylomata	13	13	0
	Condylomata Anal and vulvar	20	20	0
	Mucous patches	38	35	3
	Tonsils	25	25	0
	Papules, etc., skin	16	10	6
Tertiary.	Tertiary lesions Various	6	0	6
Congenital.	Post-natal	4	4	0
	Fetus	4	3	1
Total		167	140	27
Non-syphilitic lesions		30	0	30
Total		197	140	57

PRIMARY SYPHILIS

Reference to the table shows that of 33 cases of primary sore, 27 yielded the *Spirochæta pallida*, and that of 8 cases of primary adenitis 3 only yielded *Spirochæta pallida*; in fact, some of these latter cases would have been better classed as secondary lesions, which gives a still smaller percentage. In view of the high percentage of positive findings in other lesions, this leaves much to be desired in gland puncture, but such is the fact in these few cases and as such I state it here without apology.

The question of accurate diagnosis—of confirmation—naturally arises in dealing with the chancre. What can we class as primary syphilis or chancre? Confirmation of any syphilitic lesion is possible only by one or other of the following means:

There may be coincident or subsequent manifestations of the disease.

Serum may yield a positive Wassermann-Bruck reaction (or similar test).

Animal inoculation may be positive.

Treatment with mercury or potassium iodid may be rapidly effective.

In the primary lesions we have made use of the Wassermann reaction and animal inoculation in a few instances, but in the main confirmation has depended on (1) the manifestation of definite secondary lesions; and (2) on the rapid and uniform healing under mercury without local treatment. Accepting these two standards, the results show: (1) sores confirmed as syphilitic 33, 27 positive, 6 negative; (2) sores confirmed as non-syphilitic (chancroid), 14, all negative, making a total of 47 lesions. (The cases of two lesions which gave no *Spirochæta pallida* and no secondary lesions, but which were treated by mercury with gradual improvement, are discarded.)

The fallacy here is the reliance placed on the disappearance of the lesions under mercury; in other words, the inclusion among our definite syphilitic cases of those cases which, once the *Spirochæta pallida* was found, we felt justified in diagnosing as syphilis and in placing under treatment, with the result that no secondary signs developed beyond perhaps a general lymphatic involvement. If these cases, 11 in number, are discarded, it is seen that of 22 definitely syphilitic chancres 16 yielded positive and 6 negative results.

The 6 failures, however, deserve a word *in extenso*. Two occurred early in the course of this investigation when our technic was not so perfect; 2 were in old healing chancres, the patients being already under mercury; 1 had been treated by moist dressings, and 1 occurred in a mixed infection.

With reference to the appearance of the lesions the following classification is not without interest:

1. Of 31 sores, all indurated and more or less typical of chancre, there were:

   (a) Confirmed as primary syphilis by the appearance of secondaries, 17, 13 positive, 4 negative.

   (b) Confirmed as primary syphilis by treatment, 10, 10 positive.

   (c) Not confirmed as primary syphilis, though under observation from two to eight months, 6, none positive, 6 negative.

2. Of 15 sores not indurated and resembling chancroid, there were:

   (a) Confirmed as primary syphilis by secondaries, 5, 3 positive, 2 negative.

   (b) Confirmed as chancroid by course of disease, 10, none positive, 10 negative.

Certain facts here seem worthy of comment. Six lesions occurred, all of which were rather typical of primary syphilis, yet these cases never developed secondary manifestations, although they have been under observation at least six months (with one exception). In none of these 6 cases could the *Spirochæta pallida* be found. This fact emphasizes the difficulty of making a diagnosis from the appearance of the primary sore.

Again, of the sores which on clinical examination were diagnosed as chancroid, five developed secondary signs. Three of these had already been diagnosed as syphilis by the finding of the *Spirochæta pallida*. To this group should perhaps be added a number of cases in which, though a physician had previously diagnosed a soft sore, the patients came to the clinic with definite secondary lues. The fact that in many cases it is difficult to pronounce a given lesion primary syphilis or not is by no means new; I call attention to it in these cases that I may refer to it again later.

SECONDARY LESIONS

A word of explanation regarding the findings in secondary lesions is perhaps necessary. The diagnosis of secondary syphilis in these cases has been made on the appearance of the lesion itself and on the presence or sequence of other lesions apart altogether from the *Spirochæta pallida* or the effect of treatment. In a few instances we have not observed other definite signs of syphilis. These cases are, however, few in number (6) and do not affect our results.

On the whole our results probably show too high a percentage of positive findings. Thus, for example, in the case of moist papules and small condylomas, by which I mean those papules and small flat lesions occurring about the buttocks, groin, skin of genitals, and warmer and moister surfaces of the body generally, I quote 100 per cent. positive findings. By this I do not mean that every papule yielded the *Spirochæta pallida*, but that, taking a number of papules, the *Spirochæta pallida* was found in some and in a few cases in all of the lesions examined. This applies in a lesser degree to mucous patches. Anal and vulvar condylomas, however, proved invariably positive, though sometimes a second examination was necessary. In the dryer skin lesions of the more squamous type, the number examined is too small for accurate conclusions, but here, too, a number of lesions in each individual were examined (five or six in some instances with the finding of but a single spirochete) before considering the examination negative. The tonsils, on the other hand, have always proved to be rich in spirochetes, so rich, indeed, that it occurred to us to examine the serum from these in cases of suspected syphilis in which there were no secondary signs beyond perhaps a slight enlargement and hyperemia of the tonsils.

Out of the 25 cases examined, 11 were of this type, and in all positive findings were obtained. The essential point is to obtain a clean tonsil by gentle curetting and then to take the serum, the freer from blood-cells the better. This is very easily done under cocain, and, though the number of cases is not large, the results have been excellent in our hands. The criticism which naturally arises is that, in dealing with mouth and throat, contamination with other spirochetes is very probable; but with initial cleansing by rubbing with cotton and by curetting away the surface contamination and obtaining the clear serum (even with blood-cells) this danger is minimized. We have, further, checked our results in this respect by an examination of a number of normal tonsils, and at the risk of repetition I would add that unless the above precautions are taken and if smears suffering from surface contamination are used spirochetes which, for want of a better term, may be called "pseudo-pallida" are to be found. To the eye accustomed to the *S. pallida* these are shorter, thicker, with fewer and less sharp spirals, and in general more coarse and sluggish. Differentiation is possible by paying attention to these points and by the fact that these latter do not occur in the clear serum. When still further corroboration is desired, a stained smear will readily distinguish these from the delicate *S. pallida*.

TERTIARY LESIONS

Our results have been invariably negative and the few cases reported are included rather as a control than as being of scientific interest.

CONGENITAL SYPHILIS

Four fetuses were examined. In three of these, the organs, especially liver, spleen and adrenals, yielded many spirochetes when stained by Levaditi's (old) method. One, indeed, yielded those micro-organisms in enormous numbers, so that they were found in all the organs

except the skeletal muscles, testicle and cerebellum. They were free in the lumina of the blood-vessels and were also present in the placenta. The fourth case yielded no spirochetes even after careful and prolonged search of all organs. In this instance the mother, who had undoubted syphilis, had been thoroughly treated by mercury previous to delivery, and this apparently had banished the *Spirochæta pallida* from the fetus.

Of the post-natal cases, four were examined and spirochetes found in all; in one case both in mother and child, in another in two brothers two and three years of age.

APPLICATION TO DIAGNOSIS

In a word, our results have differed little, if at all, from what many observers have already published, notably in Europe. Accepting, then, this evidence of others and in the light of our own experience—in view, in short, of the very definite relation of the *Spirochæta pallida* to syphilis—we feel that the demonstration of the *Spirochæta pallida* is as important in syphilis as is that of the tubercle bacillus in tuberculosis.

We have always believed, in common with many syphilographers, that what has been termed "one of the great anachronisms of medicine" was, nevertheless, a necessity. There are primary sores which to the third-year student may have all the earmarks that John Hunter assigned to them (yet even here the more experienced may doubt); there are chancroids of a similar classification; and there are sores of both types which no eye can pronounce definitely as one thing or the other. It is not surprising, then, that the bulk of the teaching has taught us to withhold treatment until we are sure, in spite of the fact that in so doing we are losing valuable time and permitting the disease to take a firmer hold on the patient. Medicine has truly been on the horns of a dilemma; but after hearing the story of the syphilophobe who remembers a sore treated by mercury disappearing in time, and who has never had other signs of lues, but who lives the remainder of his life as on a volcano—for mentally, at least, the fear of syphilis is worse than the actuality—after hearing such a tale one can perceive the truth which such masters as Fournier[3] have taught, namely, that we must be sure of our facts. When the same authority confesses that he, in his younger days, felt able to diagnose syphilis from the primary lesion, but that gradually he has been compelled to give up his belief and now only in typical cases would venture a diagnosis; and when, in addition to all this, he has made it clear, as no other, how important an early recourse to treatment is; to what extent secondary manifestations are altered, ameliorated, alleviated—when one remembers all this, the usefulness of any method promising confirmation and early diagnosis needs no further apology.

That even apart from the primary lesion there are many instances in every clinic in which such confirmation of diagnosis other than that supplied by treatment is desirable, if not necessary, will be admitted by all. Cases of a doubtful mucous patch, a single condyloma, a questionable rash, a slightly ulcerated tonsil, among others, occur to us. Unfortunately the finding of the *Spirochæta pallida* in tertiary lesions is from a practical standpoint impossible, while in still later stages, as in arterial disease (Wright) it is only of scientific interest. As it is in these stages, however, that the Wassermann-Bruck reaction is most promising, it is here that we can best dispense with the fact, diagnostically at least.

In congenital syphilis it is not possible for us to say whether in instances of abortion, still-birth and early death, cases occur which show so little pathologic change that a diagnosis at autopsy is impossible. Ballantyne[4] asserts this positively. In such cases the vast number of spirochetes which we, in common with all the world, have found in the organs of these cases suggests a means of diagnosis which we have not had sufficient opportunity to test. All our cases showed other signs of syphilis.

If such is the opportunity, not to say the need, for more accurate diagnosis in primary, secondary and congenital lues, surely the *Spirochæta pallida* is the means. The uniformity of my results, rather than their number, forces this conclusion on us. Let me apply the test to our own cases. Going over our records I find that in 48 out of 110 cases of syphilis the diagnosis, at first, practically hung on the *Spirochæta pallida*. Not that suspicions were not aroused by the lesion or lesions, but that there was not sufficient ground to enable one to make a hard and fast diagnosis and subject the patient to treatment without awaiting further signs.

Naturally this was most marked in the case of primary syphilis in 20 cases of which a diagnosis was possible on this finding alone. Some 6 cases of moist papules with positive findings enabled us to come to a diagnosis; in 9 cases of hyperemic or patchy tonsils, without other signs, positive results confirmed what could otherwise have only been suspicious. Positive findings in 6 mucous patches of small size, or late in the disease, were the means of reaching a conclusion, as was also the case in 3 skin papules.

In three children of 1 month to 3 years of age who developed congenital lues, the diagnosis at first depended entirely on the presence of the *Spirochæta pallida*.

I may say that the presence of *Spirochæta pallida* was the chief factor in forming a diagnosis of syphilis in 46 individuals and from the following lesions:

	No. Cases
1. Chancre	20
2. Moist papules, etc.	6
Tonsil	9
Mucous patch	6
Other skin lesions	3
Congenital lesions	3
	47

To summarize briefly, a study of these cases has led to the following conclusions:

In the primary and many secondary lesions of syphilis the presence of the *Spirochæta pallida* can be so easily detected that, in view of the definite relationship of *Spirochæta pallida* to syphilis and of the importance of accurate diagnosis, this method of diagnosis should receive more general application.

It should be possible to find the *Spirochæta pallida* in approximately 100 per cent. of chancres, excluding those which are nearly healed or have been actively treated, and some cases of mixed infection. In view of this fact, treatment should not be begun before diagnosis is confirmed by finding the spirochete.

Mucous patches, tonsillar patches, condylomas and moist papules give approximately 100 per cent. of positive findings. Positive findings, therefore, have a distinct diagnostic value, though this is not so important as in the case of the primary lesion.

Dryer skin lesions, gland puncture and the examination of stained sections of tissue, give results often of diagnostic value, but negative findings are of little weight.

3. Fournier: Traitement de Syphilis, Edition 2.

4. Ballantyne: Antenatal Pathology, Edinburgh, 1902.

Serum from the tonsils, even when these show no definite lesion, has yielded a high percentage of positive results and has been a useful method of diagnosis in a small number of cases. This method deserves a further trial.

Absence of the *Spirochæta pallida* in congenital lues after treatment of the mother is a fact significant of the beneficial effect of mercury in congenital disease. This fact, already observed, seems sufficiently important to repeat here.

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DRUG THERAPY AND THE PROPAGANDA FOR REFORM IN PRESCRIBING

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Physicians are employed for the cure of disease. The average patient cares little for the pathology of his ailment, but he is impatient to get well. During the past quarter of a century medical science has made great progress. Pathology and etiology are much better understood. Bacteriology has opened the door to admit biotherapy in all its variations. At the same time, though the number of drugs used has greatly increased, drug therapy has retrograded. The country boy, with a pole cut in the woods, a common line and the simplest of hooks, carrying his bait in an old tin can, will often catch more fish than the city angler, equipped with hip boots, a spliced bamboo rod, silver-plated reel, silk line and costly spoons and flies. In a like manner it sometimes happens that a physician may be very successful in practice, even though he is relatively ignorant in the fields of bacteriology, blood analysis and other refinements of diagnosis; while his neighbor who is an expert pathologist makes an almost utter failure. Why is it? The first man studies therapy, and the second devotes his attention to the disease.

Is it not criminal for the physician who is entrusted with the lives of his patients to use drugs and mixtures whose composition and action he does not know? Students have been told to be careful in the diagnosis, and when the diagnosis has been accurately made any one can treat the case. Is that true? If it is, no wonder that patients treat themselves. Therapeutic nihilism is the outgrowth of inexact methods in the use of drugs. Christian science is the legitimate child of therapeutic and religious nihilism.

When a boy, I once attempted to convince my father that a certain new tool was necessary for work to be done. The reply was: "What you need is not more tools, but brains to enable you to use the tools you have." What we as physicians need to-day is not new drugs, nor old drugs in new forms. We need to know more about a few drugs, and to use them in more exact methods.

COLLEGE TEACHING OF THERAPY

Too little attention is given to drug therapy in the instruction of our colleges and by practitioners generally. A graduate from one of the leading eastern schools remarked as he left a pharmacologic society meeting: "We never got anything like that in college," and another said: "Though I took two special courses in prescription work in addition to the regular curriculum, I have learned more of drug therapy in three months' study of propaganda than I ever learned in school or practice before." *Per contra*, a lady from the Pacific coast took two prescriptions with her on a trip. Having occasion to use the remedies, she handed them to a pharmacist. She was informed that it would require a couple of days to get the drugs. Why? Were they not ordinary remedies? She was informed that each prescription called for compounds of the "ethical" proprietary style. What did they contain? Only the manufacturer knew exactly. She asked a few more questions, and then withdrew the prescriptions, ordered for herself an old standby, and remarked that she did not care to patronize a physician who did not know enough to write a genuine prescription. That was where the physician lost financially for his therapeutic laziness—in an attempt to make the patient fit the medicine, instead of arranging the drugs according to the patient's peculiarities. How would the doctor look if he bought his clothes on the same plan?

UNIFORMITY OF STRENGTH

Accuracy in drug therapeusis must depend on exactness of dosage. This is self-evident as an abstract statement, but its application is often obscure. First, there must be uniformity of strength, a uniformity which must exist from year to year and in all parts of the country. Neither must it depend on a monopoly of manufacture. For this reason we have the Pharmacopeia and the National Formulary. These works are not perfect at any time; nor is it possible to make them absolutely so, for there is constant development in the subject. For this reason the books are revised once in ten years. If any preparation in either book is not as good as it should be, there is only one proper method for its correction, and that is by such a public discussion as will demonstrate a better formula, and then in the next revision have the better formula substituted. Thus one large firm recently sent to a few pharmacists in the retail trade material with which these pharmacists might make certain experiments, with a view to a change in one of the official preparations in the coming revision. Both these books are legal standards in the United States by the act of Congress. Many individual states have taken similar action, and all should do so. It would be of very great benefit, especially since travel is so general, if we might have some international pharmacopeia. At least there might be an international agreement as to many drugs.

CHANGING STANDARD FORMULAS

In the past individual firms have sought to build up their trade by making certain secret changes in standard formulæ, and asserting, but not proving, the superiority of their products. The result has been pharmaceutical chaos, loading the pharmacists' shelves with practical duplicates and interfering with efforts to keep the stock fresh. The first work of drug propaganda was, therefore, to re-establish the legal standard. Real progress must be general. It cannot be limited for the benefit of a few. It is only the manufacturing houses and their supporters who desire to overthrow standardization of medicinal agents.

A prominent, and supposedly reputable, manufacturing house put on the market a solution of sodium phosphate which they claimed contained a gram of the salt in each cubic centimeter of the solution. I wrote asking what advantage there was in the use of potassium nitrate instead of the sodium nitrate as required in the Pharmacopeia. The reply was that they no longer used the potassium salt as formerly. (They changed their for-

mula secretly, without any publication of the fact.) They claimed that their preparation was a pure solution of sodium phosphate, but when their attention was called to the fact that sodium phosphate is not soluble in that proportion they declined to explain their assertion. At one time phenolphthalein was supposed to be physiologically inert. Now we know it as an active laxative. It is dishonest, and it tends toward therapeutic uncertainty, when a manufacturer uses secretly any chemical in his preparation. It is the duty of the physician to know the exact composition of every remedy, and the house which does not fully recognize that duty, but regards its formulas as private, deserves loss of confidence and patronage.

The products of a certain German house have long been regarded as standards of purity. It is a surprise to many in this country to learn that the American house of that name appends the name to many drugs bought in the open market, and not made by the German house. Recent United States laws have uncovered this seeming fraud, for now a large proportion of the packages sent out by the firm bear the word "Distributors" in very small type at the bottom of the label; and a report in THE JOURNAL of the American Medical Association, Oct. 23, 1909, of examinations made by the Council on Pharmacy says of one of the products of this firm: "The product is evidently not what it is labeled." Of another they say: "This salt appears to be even more contaminated with foreign substances than is the preceding one." The propaganda demands honest drugs. Manifestly drug therapy will be uncertain so long as physicians cannot depend on the genuineness of their remedies.

There are many elements of uncertainty in drug therapy which are too little recognized. I do not refer to such as depend on uncertainty in diagnosis—such, for instance, as prescribing pepsin for indigestion, when the patient needs a diastase, or *vice versa*. Nor do I refer to such an error as prescribing pepsin in an alkaline solution, which will render the pepsin inert.

PRESCRIBING MIXTURES

Mixtures always obscure the action of individual drugs, and ready-made preparations are especially harmful on that account. It is to be hoped that in the coming revision of the Pharmacopeia all such mixtures will be excluded. They are simply temporary bridges over which we may continue to travel until we become competent to write prescriptions to fit the individual cases. The liquor antisepticus and the liquor antisepticus alkalinus, for example, are not intended to be the same as proprietary goods, as has sometimes been asserted.

Even extemporaneous mixtures may not have the composition, and hence the action, expected. Such may be the case without fault on the part of the pharmacist. A solution containing free citric acid causes a decomposition of sodium salicylate, freeing salicylic acid, which floats to the top, and is likely to be left in the bottle. A similar result occurs with the following:

R.	gm.		
Acidi tartarici	1	or	gr. xv

Ft. pulv. No. 1.

R.	gm.		
Sodii bicarbonatis	75	or	gr. xiiss
Sodii salicylatis	50		gr. viii

M. et ft. pulv. No. 1.
Sig.: Dissolve each separately and drink after mixing.

In each of these cases the physician who supposes that he is getting the effect of sodium salicylate is really getting that of salicylic acid, if, indeed, this acid does not remain in the glass. Acetanilid added to an effervescent mixture is likely to remain in the glass, and so the quantity administered is little evidence of the quantity actually taken. This fact may explain the relative infrequence of dangerous results following the use of bromo seltzer.

Differences in the alcoholic strength of solutions are productive of uncertainty. This accounts for the precipitation from the following:

R.	c.c.		
Tincturæ opii	4	or	ʒi
Tincturæ viburni opuli compositæ	60		ad. ʒii

M. et Sig.: Take a teaspoonful in hot water every two hours.

If the druggist filters the product a portion of the ingredient is removed. If it is not filtered, the last dose may contain an excess.

Here is another actual prescription:

R.	c.c.		
Fluidextracti gentiani	4	or	ʒi
Spiriti ætheris nitrosi	30		ad. ʒi

M. et Sig.: Take, etc.

The gentian is immediately precipitated.

DETERIORATION OF DRUGS

The age of a preparation is another element of variation in therapeutic action. Even the simplest and most stable inorganic preparations change with time, and vegetables remedies alter rapidly. This is another objection to the practice now so prevalent among some unprogressive druggists, of buying mixtures ready made from some large manufacturing house, and on the part of some doctors who encourage the custom. All drugs should be as freshly prepared as possible, and they should be ordinarily kept in stock in their simplest forms. This is also a strong reason against physicians dispensing. They cannot afford to spend the time compounding, and so they buy the ready-mixed goods and keep them on their shelves until their action is decidedly uncertain. I venture to guess that the combined active strength of all the drugs in the offices of American physicians to-day is not over a quarter of what it should be. I know that very many are inert.

There is another element of uncertainty in the work of dispensing physicians. Because they are not much in the drug trade they are not so likely to detect drug errors as equally energetic pharmacists. A New York house doing a large physician's specialty business sells a digestive tablet, which many physicians have been dispensing to promote digestion. Analysis shows that it consists chiefly of charcoal and sodium bicarbonate, and when tested it was found to possess no digestive action.

More attention must be paid to the variation caused by the size of dose in the action of a drug. Calomel, for example, when given in one large dose, produces a cathartic effect with little constitutional disturbance. Half a gram divided into eight powders, and given at regular intervals of an hour, produces a cathartic action plus some extra intestinal irritation and plus a general constitutional influence. Given in doses of half a centigram two or three times a day, we have a general glandular stimulation, without special intestinal disturbance. Unsatisfactory drug therapy frequently results from overlooking such a variation in drug action.

Many firms sell different grades of drugs to the retailer. Manifestly the action of the best grade would exceed that of a similar quantity of the poorer grade,

but in the desire to save a small per cent. of cost a large per cent. of the action may be lost.

OBJECT OF PROPAGANDA

Ignorance, backed by laziness and prejudice, guards the portals to the general drug propaganda and is responsible for the apathy which prevents so many physicians and pharmacists from entering this movement. Prejudice is the child of ignorance, cradled and cared for by those visiting nurses supported by designing manufacturing concerns, and the nurses are amply provided with narcotic soothing syrup to lull to sleep any troublesome infant ambition which might develop into rational pharmaceutical or therapeutic effort. The object of the propaganda for reform in prescribing is to render drug therapy more exact and scientific and thus restore it to its former honorable position. The propaganda is not designed to injure any honest person or business nor in the least to countenance or make ethical any form of substitution. Rightly understood, it is an incentive to pharmaceutical progress and in no way does it rob anyone of the fruits of special pharmacal study, for study can hardly be called pharmacal, whose sole aim is to gain commercial advantage by overthrowing recognized standards.

1243 Chicago Avenue.

AN EPIDEMIC OF THIRTY-FIVE CASES OF PARATYPHOID FEVER

OCCURRING AT WEYER'S CAVE, VA. *

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Such writers as Osler, Anders, Tyson and others barely touch the subject of paratyphoid fever. The German pathologists describe two varieties of this fever, one of which simulates true typhoid, being shorter and milder in its course, while the other resembles ptomain poisoning. Their reports are made up of isolated cases gathered from the literature and not from a real epidemic. The Germans assert that meat, particularly beef, is the habitat of the paratyphoid germ of the B class, and that the fever can be produced by the toxin generated by the germ of paratyphoid B in ingested beef. These cases simulate ptomain poisoning at first, the remaining clinical course of the disease being practically without fever. There are such prodromal symptoms as bronchitis, nosebleed, headache, malaise and abdominal tenderness. There is at first a high temperature, which subsides on the administration of calomel, after which the temperature curve is very little above normal, though other symptoms, such as tympanites, gurgling in the right iliac fossa, rose spots, enlarged spleen, abdominal soreness, and increased pulse-rate are all present. This variety lasts about seven to eleven days; while the variety characterized by the higher temperature and other symptoms simulating true typhoid usually lasts eleven to fourteen days; in several cases twenty-one days elapsed before the normal mark was reached. This latter type of fever has been described to me by Dr. J. S. Sellers, who reports that such fevers, though not in epidemic form, have been prevalent in the Valley of Virginia for the last six or eight years. Dr. Sellers described the disease so typically that on seeing the first case I was able to make a diagnosis of fever akin to typhoid, but not true typhoid.

* Read at a meeting of the Medical Society of Virginia, at Roanoke, Va., Oct. 6, 1909

CLINICAL REPORT

Mode of Conveyance.—This epidemic, which occurred during the spring and summer of 1909, and which consisted of 35 cases, originated in a small house in the village of Weyer's Cave. There were eight in this family, three adults and five children. The entire family used water from an old cistern which had recently been cleaned and repaired. There were three cases in this house, the first patient being taken sick on March 26, 1909, and the second four days later, while the third case developed nine days from the beginning of the first. One other patient who became ill later during the epidemic drank water from this cistern. Nine days after this he was taken sick very promptly and developed a typical case of paratyphoid fever, as shown by blood examination, which was positive. Other modes of conveyance, as food, fomites, fingers, flies and excreta from patients suffering from and just recovering from an attack are similar to the sources of infection in typhoid fever. Flies evidently play an important rôle in spreading the disease, as they were very numerous during this epidemic and the cases were scattered over a radius of three miles under such conditions as to render it unlikely that the infection was gained in any other way than by flies. It is not probable that beef or other meat was responsible for the outbreak, because the general beef-supply came from one market, and as many cases occurred in families not supplied by this market as in those that were supplied by it. Each family had its own individual water-supply. Therefore, the water was apparently not responsible for the outbreak.

Clinical History.—The incubation period varied from one to two weeks from the introduction of the bacterium or toxins into the system, though in over half of the 35 cases the time was from nine to eleven days. In others the incubation period was longer. During the period of incubation the patient seemed to enjoy his normal health until the beginning of the prodromal symptoms, which were characterized by languor, headache, in several cases nose-bleeding, and neuromuscular pains in the limbs and back. These prodromal symptoms began with a general uneasiness in the abdomen and generally with constipation, though in five cases there was a profuse diarrhea. The above symptoms lasted only a short time before the patient consulted a physician.

General Symptomatology.—The prodromal symptoms mentioned increased in severity, and to them were added bronchitis in over one-half of the cases, headache of a peculiar constant character, chilliness, especially of the feet and legs, while the patient complained of being very hot everywhere else; the hot-water bag very frequently had to be placed to the feet and kept there for hours before relief was obtained. Abdominal pains appeared, usually over the lower abdomen, though in four cases they were gastric in position and so intense as to require morphin for relief. The temperature curve gradually increased from 100 to 101-104, and in six cases reached 105 degrees. The morning remissions were more marked than in typhoid. The pulse was rapid, 120 to 155. Delirium was rare, though it was present in three cases. One marked peculiarity of the disease was its prevalence among children, only six cases being observed in adults. The symptoms were more intense in grown people than in children, the temperature running higher and remaining so for a longer time. Neuromuscular pains were complained of in about three-

fourths of the cases. These pains gradually became less marked as the disease progressed and disappeared about the fourth day. Constipation was the rule, though diarrhea was sometimes present, and in several cases was profuse. The stools were of a peculiar character, being at first normal, later of yellow color tinted with green, and still later watery with the three colors combined. The urine was acid, scanty and highly colored in the beginning with occasional reaction to Heller's test for albumin. Later it cleared up and the quantity increased to about normal. Rose spots were prone to appear; in two-thirds of the cases they were present, and in several cases crop after crop appeared over the abdomen, back and chest, varying in number from a few spots to hundreds. Tympanites, though not particularly marked, was present in about four-fifths of the cases. Enlarged spleen could be palpated in 17 of the cases. Nausea occurred in the majority of the cases, though vomiting was present in but 6; these cases were affected more on the ptomain order. The tongue presented a peculiar variety of changes; during the prodromal stage it presented a distinct tremor, and was only partially coated, and here and there strawberry-like granules showed through the coating. After the third day the tongue became heavily coated in the center while the edges were red and covered with granules mentioned. The coating was very white and remained for five or six days after the fever had abated. The odor was almost identical with that of typhoid fever, yet it disappeared much sooner. The mouth was not dry and hard as in typhoid fever, and the tongue did not crack or bleed; no sordes formed on the teeth, though the patient complained of a horrible taste throughout the disease. Anorexia was marked. Only two patients desired food during the fever period. Hemorrhage was rare, as in only one case was there blood present in the stool more than once. This patient recovered and suffered no inconvenience from the loss of blood. In only two cases was there a distinct dicrotism observed in the pulse, while the pulse-rate was rapid, especially in children, often reaching 135 to 160 per minute. Of the six adult patients, only one had a pulse-rate beyond 112. A peculiar symptom complained of by about one-fourth of the patients was day-dreaming. With eyes open and no delirium, these patients were the victims of the most horrible illusions. Nervous symptoms were few, and in only one case was there a neuritis following the disease; it cleared up in one month and the function of the leg was restored. Emaciation varied; in several cases it was marked, while weakness was complained of by all who had the disease. Bronchitis accompanying the disease was the rule.

Special Symptoms.—The temperature was of a peculiar character in the ptomain variety. There was an initial rise, which was much higher than in the second variety, but this represented the extent of the fever, as the temperature reached practically the normal mark after the administration of calomel. This was true only in the variety characterized by intense nausea and vomiting, while the temperature curve characteristic in this epidemic was more distinctly typhoidal. Generally the highest temperature was reached on the third or fourth day of the disease and remained high for three or four days when it abated by lysis. The morning remissions were very great, as in seven instances patients whose afternoon rise was 104 would show morning temperature from 99.5 to 100. While this was the greatest difference, all the cases showed a difference from 2½ to 3 degrees between morning and evening temperatures. In 27 cases the temperature fell by lysis. In the remaining cases, some of which were ptomain in variety, it fell by crisis.

Circulation: The heart sounds were distinct, though weaker than normal, while at the same time the rhythm was increased in children from normal (85) to 135 and in six cases to 155 per minute. Dicrotism was rare in the disease, being observed in only two cases. In adults the pulse-rate was found to remain normal in four cases, while in one case it ran to 112 per minute. Three cases of adults showed normal pulse, while temperature was 102.5 and remained so throughout the disease. Nose-bleeding was frequent. Anemia followed in every case.

Respiratory Symptoms: Bronchitis of a persistent character which remained for several days after the temperature had reached the normal mark was the only respiratory symptom which deserves mention. This occurred in twenty-three cases.

Neuromuscular pains were very distressing in about three-fourths of the cases, while in the remaining cases no pains other than an occasional headache were present. This disappeared about the fourth day of the fever. In two cases cramps in the calves of the leg were bitterly complained of.

Eye Symptoms: The eye presented in every case a wide dilatation of the pupil which reacted very slowly to light. The pupils remained dilated for several days after temperature was normal.

Symptoms of Digestive Tract: The coated tongue with its peculiar changes as described under "General Symptomatology," constant gurgling in the right iliac fossa, tympanites marked in but few cases, yet present in four-fifths of them, were the chief digestive symptoms. Gastric pains of a boring, excruciating character, requiring morphin to relieve, were present in four cases. Nausea and vomiting in the initial stages were observed in six cases. There was a peculiar doughy feel to the palpating hand on the abdomen which, with other symptoms, should enable one familiar with it to make a tentative diagnosis. This was felt all over the abdomen. The spleen was moderately enlarged, though not so distinct as in malaria or typhoid. Constipation was present in about five-sixths of the cases, while diarrhea occurred in about one-sixth of them. Stools have been described previously.

Skin Symptoms: The skin was dry during the prodromal period and up to the height of the fever. When this was reached, however, the skin became moist and the patient complained of profuse sweating. Rose spots appeared after the fourth day and were seen in successive crops. These spots appeared in two-thirds of the cases. The cheeks were flushed while the fever was at its height, and the facies very similar to that seen in typhoid.

Recrudescences were rare, and in our cases only one occurred. The temperature rose to 104 after having been normal for four days. Calomel was administered and the temperature very promptly subsided.

Complications and Sequelæ.—Neuritis, nephritis and cardiac diseases are not as liable to occur as in typhoid under proper treatment, because the duration of the disease is not so great and the poisons generated by paratyphoid B are not as virulent as those generated by the typhoid bacillus. Constipation may be placed as a complication, as about one-fourth of all the cases have suffered to some extent from this trouble since convalescence was established. There has been in our cases no insanity or other mental symptoms worthy of note. In only one case were there signs of hemorrhage; this was not severe, however, and the ice-bag apparently relieved

the condition. There were but few symptoms that would lead to the belief that there was any ulceration of the lower section of the small intestines. Undoubtedly, there was an inflammation in the lymphatic structure of the small intestines, yet the symptoms were so mild and the duration of the disease was so short that it is most probable that ulceration and hemorrhage did not occur. The soreness and tenderness on pressure gave every reason for the belief that there was an inflammation, but the post-mortem facts were lacking. The exact pathology of the condition is unknown at present.

Diagnosis.—The diagnosis of this condition is made on the symptoms and tests, which are as follows: First, the onset is more abrupt than any other continuous fever yet described, the initial headache is more severe and of longer duration, the temperature usually reaches 103 in the first two days, while the pulse is more rapid especially in children than in any other condition described with the same temperature. It is a disease of childhood, though adults are sometimes affected. The tongue presents the characteristic changes spoken of in the section on "General Symptomatology." During an epidemic the diagnosis is not often missed. Wide dilatation of the pupil from the onset, constipation rather than diarrhea, and, last and most important, the serum reaction with paratyphoid B, which gives a typical agglutination, are the chief diagnostic points.

Prognosis.—The prognosis is decidedly good under general typhoidal treatment. No patient died during this epidemic.

Treatment.—The treatment may be divided into prophylactic, medicinal and nursing.

Prophylactic measures consist in isolation of the patient in a well-ventilated room, sterilizing all utensils used by the patients and disinfection of the excreta. The bed-clothing and other clothing should be well boiled before being used again and the room fumigated.

Diet should be as near liquid as the patient can subsist on. In every case in which solids were used the disease lasted longer and the patient suffered from gastralgia and general abdominal discomfort. Milk diet is best, though soft-boiled eggs, predigested beef and other peptonized preparations were all used. Water should be used *ad libitum*.

Medicines have but little effect on the course of the disease. In the beginning of the disease the administration of calomel in from two- to four-grain doses, followed by castor oil in children, seems to aid in producing a mild course of the disease. Such intestinal antiseptics as thymol, eucalyptol and zinc sulphocarbolate, were used, but as to their efficacy I am uncertain. The mental effect produced was probably beneficial. Hydrotherapy, applied as in the treatment of typhoid fever, was used in every case where the temperature reached 102.5. Mouth toilet is important, and for this a saturated solution of boric acid was used every two or three hours. Good nursing is by far the most important part of the treatment, both as to the cure of the patient and the prevention of the spread of the infection.

BACTERIOLOGIC REPORT

The bacteriologic work was done by Dr. Allen W. Freeman, assistant commissioner of health of Virginia, Richmond, Va., and Dr. Harry T. Marshall, professor of bacteriology, University of Virginia, Charlottesville, Va., and I am much indebted to them for the painstaking work which they did on these cases. Their report follows:

A few agglutination tests were made with the serum of patients and a culture of *Bacillus typhosus*. The bacteria did not agglutinate typically. In dilutions up to 1:50 a few small, loose clumps formed within two hours, but the main mass of bacteria remained free and motile. In a few specimens, which were allowed to stand over night, large, tight clumps and motile Pfaundler's threads developed.

A comparative test was next set, one serum being used against several different bacteria at the same time. The hanging-drop method was employed, a fresh, eighteen to twenty-four-hour living agar culture being used, suspended in normal salt solution. The result of this test is shown in Table 1.

TABLE 1.—COMPARATIVE TEST OF SERUM FROM CASE 4 AGAINST FOUR DIFFERENT BACTERIA *

Dilution of Serum.	Suspension of Paratyphoid A.	Paratyphoid B.	Typhoid.	Paracolon.
1:10	0	+++	0	0
1:50	0	+++	0	0
1:100	0	+++	Slight Trace	0
Control	0	0	0	0

* The reading gives the end reaction after two hours.

In this experiment agglutination of paratyphoid B began promptly, and at the end of two hours was positive in a dilution of 1 to 100.

A series of serums was next tested simultaneously against typhoid and paratyphoid B. The first seven serums were tested by the hanging-drop method, the remainder by the macroscopic method, a dilution of 1 to 30 being used, and the rapidity and completeness of the agglutination reaction being noted. From Tables 1 and 2 it is seen that 17 cases tested, all except 2, Cases 25 and 26, reacted positively with paratyphoid B. The serum from Case 26 was obtained at an early stage of the disease. Out of 8 cases tested quantitatively, 6 were definitely positive with paratyphoid in a dilution of 1 to 100. In several cases, marked "trace," "suggestive," or "slight," the patients' serum produced small clumps in the typhoid culture, but left many free and active organisms. It is best to regard those results in which the reaction is doubtful as negative. Case 26 may be discarded. This leaves 16 cases of which 15 reacted positively with the paratyphoid B bacillus, while none of them gave a clear, positive reaction with the typhoid bacillus.

TABLE 2.—COMPARATIVE TEST OF A SERIES OF SERUMS *

No. Case.	Dilution of Serum.	Agglutination with *B. typhosus.*	Agglutination with *B. paratyphosus.*	Time Min.
6	1:10	0	+++	40
	1:50	0	++	40
	1:100	0	+	60
7	1:10	0	++	60
	1:50	0	+	60
	1:100	0	Trace	60
11	1:10	0	+	60
	1:50	0	++	60
	1:100	0	+	60
16	1:10	0	+	60
	1:50	0	++	60
	1:100	0	++	60
12	1:50	Trace	+	60
	1:100	Suggestive	+	60
20	1:50	Slight	++	60
	1:100	Trace	+	60
26	1:50	Slightly Suggestive	Suggestive	60
	1:100	Slightly Suggestive	Suggestive	60
1	1:30	0?	++++	90
3	1:30	0?	+++	90
9	1:30	0	+++	90
13	1:30	Trace	+++	90
15	1:30	Trace	+++	90
	1:30	0	++	90
25	1:30	0	Slight	90
22	1:30	0	++	90
27	1:30	0	+++	90

* Serum taken during first few days of the disease.

As the patients came from different parts of the village of Weyer's Cave, were of different ages and occupations, and were attacked at different times, it seems reasonable to infer that the entire series of cases was caused by the same strain of bacterium.

In attempting to obtain a clew to indicate the presence of some carrier in this epidemic, agglutination tests were made with the blood of 38 individuals, mostly healthy members of households in which cases of fever had developed. Of these 38, 5 (4 adults and 1 adolescent) gave positive reaction with the paratyphoid B.; the other 33 reactions were negative.

A month after the agglutination tests were made at Weyer's Cave, but while cases were still continuing to appear at that

point, a mild fever, resembling the disease at Weyer's Cave, broke out in a household about six miles away, attacking five out of six of the family. Through the kindness of Dr. Whitemore, the serum from these patients was examined, and from another patient, living about ten miles from Weyer's Cave, suffering with a severe, typical case of typhoid fever. Serums from the latter patient and two of the members of the above-mentioned family reacted with the typhoid bacillus positively, and gave no agglutination with the paratyphoid B. The other members of the first mentioned household, in whom the disease was of recent development, gave no agglutination with either culture. This indicates that in the vicinity of Weyer's Cave true typhoid was also occurring during last summer.

Several attempts were made to recover the paratyphoid B bacillus from the stools of patients, chiefly by the use of Endo's medium, but without result.

Blood cultures were made from three patients. The first patient had had the fever for over a week, the others for only a few days. About 10 c.c. of blood were divided among several agar and Endo-agar plates, and a part was put in broth and dextrose. The blood from the last case was mixed with sterile ox-bile, incubated, and attempts were made to cultivate the bacillus from the mixture. All of the blood cultures remained sterile.

After the failure to recover the offending organism by workers in the laboratory located in the town of Weyer's Cave, efforts were made to isolate it by Mr. J. A. Waddill, acting bacteriologist of the Virginia State Department of Health, working in the branch laboratory in Staunton. Notwithstanding the fact that five or six cases, apparently favorable as to time, were carefully examined, using Endo's media, no organism resembling typhoid or paratyphoid could be isolated. It is important that at this time studies were also being made of the typhoid fever situation in Staunton, twelve miles from Weyer's Cave. The typhoid bacillus was discovered without difficulty from the Staunton cases, using the same technic and same media as those used in the cases at Weyer's Cave.

CONCLUSIONS

We believe that there prevailed at Weyer's Cave, Va., during the summer of 1909, an epidemic of a disease which was probably paratyphoid fever. We believe further that the epidemiologic studies failed to give any reasonable explanation as to the means of transmission of the disease.

We believe that this condition was peculiar to the epidemic in question, as further studies in the same neighborhood disclosed the prevalence of a disease which was clinically and bacteriologically true typhoid fever.

ABSENCE OF IRITIS AND CHOROIDITIS AMONG SYPHILITICS WHO HAVE BECOME TABETIC

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In the past ten years I have examined the eyes of sixty-one patients where the diagnosis of tabes had been or was subsequently made. In many of these cases, although a previous history of syphilis was strongly suspected, the most careful scrutiny failed to elicit such infection. In examining the eyes of tabetics, bearing in mind the extreme difficulty of obtaining a syphilitic history, I have always searched for the corroborative evidences of a previous syphilitic infection, such as traces of choroiditis, old iritis or chorio-retinitis.

With increasing numbers of tabetics examined, it has been a constant source of wonder to me that, even though syphilis had been a part of the antecedent history of the vast majority of them, I have never been able in any of these cases to find traces of syphilis in the eyes.

Moreover, looking at the matter from another standpoint, I have record of 79 cases of syphilitic iritis and 42 cases of syphilitic choroiditis which occurred after the acquisition of the syphilis in periods varying from six weeks to sixty years in one case, that of a man 83 years old, blind from a disseminated choroiditis. It is true that the majority of these cases soon passed from my observation; many of them, however, I have seen at intervals during the past ten years.

In not a single instance where a syphilitic suffered from iritis or choroiditis have I known the individual afterward to become afflicted with tabes or paresis.

On account of the limited number of cases which have come under my observation, I considered this fact to be a coincidence peculiar to my own practice. It was only, after searching the literature, therefore, and finding that the same coincidence had been noted by Wernicke[1] in regard to tabes and by Wintersteiner[2] in regard to paresis, that I began to attribute some significance to the observation. Wernicke, after noting the fact that he had never seen a tabetic who presented signs of an old iritis or choroiditis, sets down the following dictum: "Syphilitics who have suffered from specific iritis or choroiditis do not acquire tabes." This seems to be a very broad assertion, and he in no wise corroborates it by any facts or figures, and yet my own experience, such as it is, bears out this statement.

Wintersteiner, in examining the eyes of 1,000 patients who were suffering from paretic dementia, most of whom were known to be syphilitic, and all of whom, according to his judgment, were syphilitic, found that, although the optic nerve was involved in 28.5 per cent. of the cases, choroidal changes were present in only 3.86 per cent. of the cases and iritic changes in only 1.76 per cent.; i. e., uveal changes in 5.62 per cent. of the cases, counting both iritis and choroiditis as coming under the head of uveal changes. Roughly speaking, in this series of cases the optic nerve was involved five times as often as the uvea. How remarkable this finding is can best be shown by quoting the following statistics taken at random from the literature:

In 114 cases of syphilitic eye diseases Drewes[3] found the uvea involved 73 times, the optic nerve 4 times; Alexander[4] in 1,385 cases found the uvea involved 331 times, the optic nerve 107 times; Galezowski[5] in 128 cases found the uvea involved 52 times, the optic nerve 31 times; Eveille[6] in 301 cases found the uvea involved 143 times, the optic nerve 58 times; Schubert[7] in 231 cases found uvea involved 156 times, the optic nerve 8 times; Badal[8] in 793 cases found uvea involved 383 times, the optic nerve 139 times; Talbot[9] in 434 cases found the uvea involved 262 times; optic nerve 60 times; Boeck[10] in 139 cases found the uvea involved 126 times, optic nerve 5 times; Stammwitz[11] in 197 cases found uvea involved 40 times, optic nerve 14 times.

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1. Wernicke: Tabes und Syphilis. Centralbl. f. Augenh., March, 1908.
2. Wintersteiner: Augenspiegel-Untersuchung bei 1,000 Geisteskranken, Wien. klin. Wchnschr., 1907, No. 47.
3. Drewes: Beitrag zur Statistik der syphilitischen Augenkranken, Diss., Berlin, 1881.
4. Alexander: Syphilis und Augen, Wiesbaden, J. F. Bergmann, 1893.
5. Galezowski: Du décollement de la rétine syphilitique et de son traitement, Rec. Ophth., 1885, 447.
6. Eveille: Recherches statistiques sur la syphilis oculaire, Thèse de Bordeaux, 1881.
7. Schubert: Ueber syphilitische Augenkrankheiten nach Beobachtungen aus der Augen-Klinik, Prof. Cohn in Breslau, Berlin, 1881.
8. Badal: Recherches sur manifestations oculaire de la syphilis, Arch. d'ophth., 1886, pp. 104-114, 301, 308.
9. Talbot: Recherches sur la syphilis de l'œil, Thèse de Paris, 1894.
10. Boeck: Undersogelser angabe syphilis fort saetelse af Recherches sur la Syphilis appuyées de tableaux de statistique. Christiania, 1875. Quoted in Graefe-Saemisch Handbuch der gesamten Augenheilkunde, Lieferung, No. 80.
11. Stammwitz: Beitrage zur Statistik der syphilitischen Augenerkrankungen, Diss., Leipzig, 1904.

The total shows that in 3,622 cases of eye disease due to syphilis the uvea was involved 1,566 times, the optic nerve 887 times. Where Wintersteiner in paretics, practically all of whom were syphilitic, found the optic nerve involved about five times as often as the uvea, the findings of other observers of syphilitic eye diseases show the uvea involved almost twice as often as the nerve. The difference here is too great to be merely a matter of accident. Judging from the figures, it would seem that where paresis is present the likelihood of uveal complications as compared to nerve involvement is much reduced. Why should this be?

Wintersteiner advances the hypothesis that in some cases the ectodermic structures are attacked with predilection by the syphilitic poison; in such cases the cerebrospinal system suffers most damage. In other instances the mesodermic structures bear the brunt of the attack, while the ectoderm escapes; in such cases iris and choroid among other mesodermic structures are involved, while the nerve tissue escapes.

In commenting on Wintersteiner's article, von Wagner remarks that he has long noted as a strange coincidence how lightly most paretics have had secondaries and that there seems a certain antagonism between secondaries and paresis. Severe secondaries, little likelihood of paresis, and, *vice versa*, light secondaries, greater danger of paresis. To me Wintersteiner's explanation hardly seems a rational one.

Syphilis is pre-eminently a disease of the blood-vessels. Every syphilitic lesion is due primarily to pathologic changes beginning in the blood vessels. We can hardly concede a theory to be rational which advances the hypothesis of a syphilitic poison virulent enough to cause destructive changes in the blood vessels supplying epiblastic structures, but always sparing those same blood vessels when they supply mesoblastic tissues. Perhaps an explanation better fitting all the facts of the case is one based on Ehrlich's theory of the antibodies. If we think of tabes and paresis as due, not to direct syphilitic insult, but rather to the destructive action of antibodies on cord and brain, and if we consider that where antibodies are present in large numbers, the likelihood of tabes and paresis is much increased, then I think the antagonism between tabes and iritis becomes less mysterious. Where secondaries are severe, antibodies are largely absent. Iritis is essentially a secondary of syphilis; in conditions where we have iritis, antibodies being absent, the danger of tabes is small.

On the other hand, where secondary symptoms of syphilis are kept in check, not by efficient antisyphilitic treatment, but by abundance of antibodies, we have no iritis, but we have imminent danger of tabes. It is, I think, a recognized fact that tabes, and still more paresis, is more common among syphilitics who have had but little effective treatment, and still have not suffered severely from secondaries. Why should this be? In the light of the above explanation, it becomes, I think, clear. Their symptoms were kept in check, not by efficient treatment, but by large numbers of antibodies which afterward acted destructively on brain and cord. This, I believe, also explains why there is such a great difference of opinion among different observers as to what percentage of tabetics have had syphilis.

A large proportion of tabetics absolutely and in good faith deny syphilis. The lesion has perhaps been a mere erosion somewhere, perhaps a so-called soft chancre, perhaps a urethral chancre. They do not know that they have had syphilis. They have never had antispecific treatment, their secondaries have been held in check by antibodies, and these patients are the ones that later develop tabes or paresis; we get no uveal but rather optic nerve changes. In a nutshell, absence of effective treatment, plus absence of secondaries, spell large quantities of antibodies which enable the uveal tract to escape, but at imminent danger to brain and cord.

Can we draw any practical conclusion from this absence of iritis in syphilitics who become tabetic? I think the number of cases thus far observed is entirely too small to say that a syphilitic who suffers from iritis or choroiditis will escape tabes, and still if this fact is corroborated by further observations it seems to me of practical importance in prognosis.

Many syphilitics, especially the more intelligent ones who are familiar with the fact that tabes and paresis are parasyphilitic diseases, are often possessed of a haunting fear of the future. If it were possible to assure a syphilitic who suffers from iritis (and I have done this in many cases) with a fair degree of positiveness that he will escape tabes and paresis, it would often be a source of great comfort to him. It would also aid the physician in a practical understanding of the case and its possible future outcome.

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POMPEIAN SURGICAL INSTRUMENTS*

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Multa renascentur, quae iam cecidere, cadentque
Quae nunc sunt in honore.—*Horace.*

The poet Horace, who lived shortly before the destruction of Pompeii, has said: "Many things shall be revived which already have perished, and many things shall perish which are now held in honor."

I find this quotation an appropriate motto for an essay on the history of ancient surgical instruments.

In presenting this paper I think it proper to offer an apology for introducing a subject which deviates somewhat from the established rule of a purely medical topic. My theme is rather in the nature of a historical retrospect, a study of the condition of medical science as it presented itself at a time when a tragic fate enwrapped Pompeii in the somber mantle of ashes and cinders for a period of about 1,900 years before the searching hand of a new generation began to remove the horrid and mysterious veil. What it revealed and continues to disclose is both ghastly and inspiring, both pitiful and amazing. On one hand all the horrors attending a sudden wholesale destruction of life, innumerable skeletons of human and animal bodies graphically indicating by the various positions in which they were found their last moments and struggle of life; on the other hand, treasures of incalculable value with regard to ancient art, science and customs.

When toward the second half of the eighteenth century the first excavations were begun the muse of Schiller broke forth in exclamatory strain:

"What wonder here? Of thee, O earth, a fount
Have we invoked; and from thy somber womb
What yieldest thou? Is life in the abyss?
And dwells a new race there till now concealed
Beneath the lava? Doth the past return?
O Greeks, O Romans, come; behold, again
Rises the old Pompeii and reappears
The long-lost town of Dorian Hercules."

An ancient city—buried and entombed for a period of over 1,800 years and again exhumed and uncovered to

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the wondering gazes of new generations, totally distinct in their character, views, habits and religion from the inhabitants of that doomed community—this is Pompeii, which fell asleep, remained so while ages passed and has awakened in a new world.

There is no other ancient city with which we have so intimate acquaintance.[1] Even the physical aspect of its people, their customs, their household utensils, the mysteries of their worship, everything connected with their daily life, is being presented to us. In vain do we look for such a wealth of traces in ancient cities of a far greater historical importance, as Babylon, Thebes, Jerusalem and even Rome.

Queen among seacoast towns at a time when Rome had reached her highest point of civilization, Pompeii became a favorite resort for the Roman aristocracy, men of wisdom, rank and wealth indulging in pursuit of pleasure and habits of indolence, a light-hearted people, living for the games of the day and the banquet of the morrow.

And as the wandering observer follows in awe-struck thought through the desolate cobblestone-paved streets of the city, peering into its deserted mansions, their walls fresh as if painted yesterday—not a hue faded on the rich mosaics of the floors—in its forum the half-finished columns as left by the workman's hand—in its garden the sacrificial tripod—in its halls the chest of treasure, the furniture and priceless works of sculpture—in its cubicula the perfumes and the rouge of faded beauty—it is within the scope of imagination to conceive the abandoned abodes and public meeting-places enlivened by a joyous, light-hearted people following every varying fancy of pastime and passion.

The chief interest, however, of the medical practitioner and student of medical history will center in the House of the Physician—*casa del chirurgo*—so called from a find of a number of surgical instruments in the year 1770 and 1771, which are now to be found in that palace of antique treasures, the National Museum of Naples.

Whatever vestige of ancient medical science has been brought to light from the ruins of Pompeii is undoubtedly of Greek origin; for, in spite of the subjection of the Greeks to the political power of the Romans, this unique people preserved its old creative activity and power, vanquished its political conquerors in the sphere of intellect and ruled the Romans in the field of science. Children were expected to learn to speak Greek; Greek teachers were invited to Rome, and the foremost Roman writers of the golden age of Latin literature prided themselves on their familiarity with Greek culture as openly as most of Europe did on its familiarity with French in the eighteenth century.

In philosophy, oratory and historical writing the Romans followed the Greeks, as is manifest from Cicero, Seneca and others.

Whatever great works in sculpture and painting the Romans possessed were the creations of Grecian artists; the same holds true of works on mathematics, mechanics, botany, etc. It is, therefore, easily understood that the Grecian doctrines of medical science completely supplanted and checked the development of the scanty germs of Roman medicine proper.[2] It being an established and generally admitted fact that our present educational system is based for the greater part on the foundation which the ancients have laid, the importance of the knowledge of this basis of our intellectual life is self-evident and the subject claims the earnest consideration of those interested in art, philosophy and natural sciences.

1. Guhl and Koner: Das Leben der Griechen and Römer, 1872.
2. Baas: History of Medicine, 1889.

The literature on this subject I have found to be rather limited, the more extensive works on Pompeii giving but a superficial and incomplete mention of the various instruments found.[3]

Dr. Senn,[4] in an article on this subject, describes a limited number of the instruments under consideration. The bulk of my information I derived from a masterly, exhaustive treatise by John Milne.[5]

The finds of ancient Roman instruments during the past centuries in Europe have been numerous, but thoroughly scattered, and the instruments herein described form but a small part of a considerable collection unfortunately too much dispersed. A centralized collection would be ideally adapted to furnish the adequate means of thorough comparative scientific research. As it is, there is scarcely a museum with any number of antique bronzes which does not number among its contents a few surgical instruments, and it is surprising that no attempt has been previously made to systematize and reconstruct the surgical armamentarium of the ancients, instead of merely to issue a series of reports indicating the uses of instruments described.

The most important collections are to be found in the following museums: in England, the British, the Guildhall, the Shrewsbury and Chester museums, many of the specimens in which have been discovered in ancient Roman cities and camps in England; in France, the equipment of Emperor Severus at Saint-Germain-en-Laye, the Louvre, Cluny and Orfila museums, and those in the cities of Montauban, Rouen and Amiens; the instruments found by M. Toulouse in Paris, known as those from the grave of "the surgeon of Paris," are also noteworthy. Museums in Namur, Brussels and Charleroi in Belgium, others in Austria and Athens, the Thorwaldsen Museum of Copenhagen and many museums in Basel, Bern, Schaffhausen and Zurich in Switzerland, contain collections of Greek and Roman instruments very similar in design and intention to the ones under consideration from the museum of Naples.

After these preliminary remarks, which I deem essential for a better understanding of the subject, I proceed to attempt a description of the various instruments reproduced in the accompanying illustrations, which are exact facsimiles of the originals in the National Museum of Naples. These instruments, with the exception of a few additional parts of silver, were made of bronze, a fortunate circumstance for the historian and searcher of antiques, as the metal, on account of its ability to endure oxidation, has withstood the lapse of time. Copper, being much more easily obtained from ore than iron, was first to be used, the Egyptians employing it 6,000 years ago. Hippocrates says: "Use bronze only for instruments, for it seems labored ornamentation to use vessels of it." It is erroneous to assume that the ancients did not make many of their instruments of iron and steel, but the bronze has outlived the iron. The Homeric poems picture a civilization in a state of transition from a bronze to an iron period, and weapons, such as sword, axe and spear, are frequently described as made of iron. Certain instruments, as the cautery, are always spoken of as made of iron, as the name implies.

The destructibility of iron will easily explain the fact that cauteries, which must have existed in enormous numbers, are among the rarest surgical instruments found. It is not generally known that steel entered into

3. Overbeck, J.: Pompeii.
4. Senn, Nicholas: Pompeian Surgery and Surgical Instruments, Philadelphia Med. News, December, 1895.
5. Milne, John Stewart: Surgical Instruments in Greek and Roman times, 1907.

the manufacture of metal implements of the ancient Greeks and Romans, although the steel was made in a primitive manner, which is, however, still in vogue in India and China, where a fine quality of steel is procured. As the terms "iron" and "steel" are synonymous in Latin and Greek, modern writers have been inclined to mistake them for another.

Other metals were occasionally used, as tin for uterine sounds and probes for rectal work, lead for sounds and tubes for intrauterine and rectal treatment, gold for probes for applying salves to the eyes and separating adhesions of the eye to the lid, for opening pustules of smallpox, for burning the roots of hairs in trichiasis, for binding the teeth together with gold wire in fractures of the jaw. Silver was used in forceps, probes, grooved directors, uterine syringes and catheters.

Judging from the great number of probes and sounds unearthed in many parts of Europe, once under the dominion of the great Roman Empire, we are justified in our conclusion that the *tactus eruditus* was well developed among the medical profession of remote antiquity. Three groups of probes and sounds are presented in the Naples collection as follows: The double simple probe (specillum), a plain rod of metal rounded off at either end, tapering at either end to a blunt point (Plate I, Fig. 1). A variation of this probe is the specillum with two olivary ends (Plate I, Fig. 2) frequently mentioned by Galen and Paul of Ægina, who, in speaking of fistula, says: "We must first examine them with a sound if they be straight or with a very flexible 'double olive,' such as those made of tin or the smallest of those made of bronze, if they be crooked." He also refers to its use as a cautery to destroy the roots of the ciliary hairs after epilation. The second group embraces a class of probes similar to the ones just described, one end of which, however, having the shape of a typical spoon, a variety not specially mentioned by any classical writer. It has the same oval nucleus at one end as the simple probe, but the other end widens into the form of a spoon either round or oval shape (Plate I, Figs. 3 and 4), which probably served the purpose of curettes and to mix and apply medicaments. It seems from the large number of similar instruments being found that they were used for lay as well as for medical purposes. Many of them are toilet articles. An interesting discovery of two typical specimens in the grave of a lady artist was made in Vendée in 1847, where, among a number of color-pots and alabaster mortars for mixing colors, was a étui similar to the typical cylindrical instrument case of the ancient surgeon, in which were two spoon probes similar to the ones under consideration. Their great resemblance to the Volkman curette is self-evident.

On close inspection it will be noticed that the shaft of No. 3 is prettily ornamented with longitudinal and spiral fluting. Some have been found with a silver band inlaid in a spiral around the shaft or even entirely gold plating. A third instrument of this class, a ligula type of specillum (Plate I, Fig. 5), is strictly speaking not a surgical instrument, as it seems to have been used by the laity and no doubt also by physicians for making applications to affected parts or extracting from tubes and box ointments, balsams and powders which entered so profusely into the mysteries of the Roman lady's toilet. Related to the foregoing instrument is a spoon about 5½ inches in length, having a bowl nearly one inch in diameter (Plate I, Fig. 6). The instrument shown in Plate I, Figures 7 and 8, were found together. The handles of both are bronze; the scoop and spatula parts are of silver. Vulpes describes these as a lancet for drawing blood and a spoon for collecting and examining the same. These, like those previously mentioned, however, were used for mixing and spreading medicaments, as it is impossible to regard an instrument of silver as a cutting instrument.

The third group comprises the spatula probe (Latin, *spathomele;* German, *Spatelsonde;* Plate I, Figs. 9, 10, 11, 12, 13, 14). Almost every writer mentions the spathomele. It consists of a long shaft, 6 to 7 inches in length, with an olivary point at one end and a spatula at the other. It was a pharmaceutical rather than a strictly surgical instrument. The olive end was used for stirring medicaments, the spatula for spreading them on the affected parts or on lint. With it ointments were applied and again scraped off. The very large numbers in which they are found would indicate that their use was not confined to medical men, as they seemed to have been used by painters to prepare and mix their colors. Although the olive end of the spathomele was too large to admit of its use as a probe for small lesions, it is evident that in exploring large cavities it must have been a valuable instrument. Priscianus alludes to plugging the nares with it, and Leonidas mentions it as a tongue depressor, while Soranus refers to it as a cautery. All of the specimens have the characteristic oar-blade shape, though the outlines vary greatly. In some (Figs. 9, 10 and 11) the blade widens out at the end, so that the tip is broad and rounded; in others the blade slopes to a rounded point or is even pointed (Figs. 12, 13 and 14). The ends of the blade are usually thick and blunt, although some thin and sharp ones have been found, almost suitable for cutting. It is of interest to note in the spathomele (Fig. 12) an eyelet at the proximal end, indicating perhaps the attachment of a handle. This arrangement is followed out in a number of ancient instruments, especially of scalpels (of which unfortunately I was unable to obtain a specimen), in which the knife and handle were not forged in one piece, but united by something very like our aseptic joint. Hippocrates insists on the importance of keeping everything in surgery absolutely clean.

Among the various kinds of forceps the simplest forms consist of a strip of metal bent on itself with the jaws turned inward (Plate I, Fig. 15) and the more elaborate and stronger one (Fig. 16). These seem to have been the typical forceps for epilation, a cosmetic custom which has come down to us from prehistoric times and seems to have been prevalent among all primitive races. In the bronze age the hair was fixed with a broad-jawed forceps and cut off close to the skin by means of a knife or "razor," although no doubt ordinary epilation for superfluous hair was practiced, also as a purely surgical operation for trichiasis consequent on the granular ophthalmia which was so common among the Romans. Several of this type were found in the grave of the oculist Gaius Severus at Rheims. A variation of the above epilation forceps is a large powerful instrument, 7 inches in length (Plate I, Fig. 17), which no doubt has been used as a dissecting or tumor vulsellum, the end of the blades being toothed. It was used whenever it was desired to make traction in any subject, and is mentioned by various writers in excisions of the clitoris, of malignant excrescences, of epulis, of hemorrhoids, etc.

A specimen of forceps which corresponds somewhat to our modern fixation forceps is shown in Plate I, Figure 18, in which the jaws turn to one side at an obtuse angle in a fairly sharp point, concave internally and convex externally. A sliding ring, quadrangular in shape, fixes the jaws after they have been applied. This angled type

of forceps may be the one referred to by Paul in his description of the plastic operation on the eyelid for trichiasis, when he directs to raise the redundant skin of the lid with the fixation forcep and cut it off with a scalpel.

The instrument shown in Plate I, Figure 19, resembles a forceps, the unfinished condition of the tips of the handles indicating that they had been inserted into the handles of wood; it seems better suited to grasp some substance inside the bow than between the jaws, and is assumed by Dr. Milne to have been used to extract calculi from the bladder.

An excellent specimen of a sequestrum forceps was found in the House of the Physician. It is 8 inches in length and formed of two crossed branches on a pivot (Plate I, Fig. 20). The handles are square; the jaws are curved and have across the inside of them parallel grooves which oppose each other accurately. It is classed in the catalogue as an instrument for crushing calculus of the bladder. This is, however, not a manipulation described by the ancients. The only case in which splitting of calculi is referred to is described in Celsus, and then a chisel is said to have been used. Again, this forceps, known as the Pompeian forceps, has been looked on as a tooth-extracter. Although its shape is not otherwise unsuitable for this purpose, its jaws are not particularly adapted for grasping a tooth, as they are not hollowed inside. Whatever the shape of the Græco-Roman forceps was, it seems to have been a handy instrument for many different manipulations. The graceful form of the instrument with its artistically fluted handle is another example of the happy faculty of the ancients of combining the beautiful with the useful. Hooks, blunt and sharp, are frequently mentioned in both Greek and Latin literature and served the same purposes as those for which we use them, the blunt for dissecting and raising blood-vessels like the modern aneurism needle, the sharp for seizing and raising small pieces of tissue for excision and for freeing and retracting the edges of wounds (Plate I, Figs. 21 and 22).

In the Naples Museum alone there are upward of forty examples of hooks. Scissors (Plate I, Fig. 23) made of steel or bronze are common objects in museums, and their use is referred to by various old writers. Oribasius and Celsus refer to cutting the hair as a therapeutic measure. A few references are made to the use of the shears for cutting tissues, as by Celsus in abdominal injury with protrusion of the omentum, for the radical cure of hernia and the removal of warty excrescences.

The instruments shown in (Plate I, Fig. 24) in the catalogue is termed a flammete or fleam for veterinary purposes. As the offices of surgeon and veterinarian were often fulfilled by the same individual in Roman times, it is probable that such an instrument was used by the physicians for the operation of phlebotomy. Although venesection is one of the most frequently mentioned operations and the phlebotome so mentioned, there is absolutely no description of this instrument. Galen has three treatises on the subject, and Hippocrates frequently mentions it. The phlebotome was used for all sorts of operations, opening of abscesses, puncture of cavities, fine dissecting work, fistula lacrimalis, removal of warts, phimosis, dissection of sebaceous cysts, etc.

The following description of Paul of Ægina (A. D. 625) corresponds to one of the two bone levers in the Naples Museum made of bronze (Plate I, Fig. 25): "It is an instrument of steel, about seven to eight fingers'-breadth in length, of moderate thickness that it may not bend during the operation, with its extremity sharp, broad and somewhat curved." It is 6 inches in length, both ends curved, while one is flattened and the other pointed. A similar instrument was used by Paré for levering up depressed bones; and from what Galen says it may have been used for levering out teeth. That the ancients were intimately acquainted with the surgical

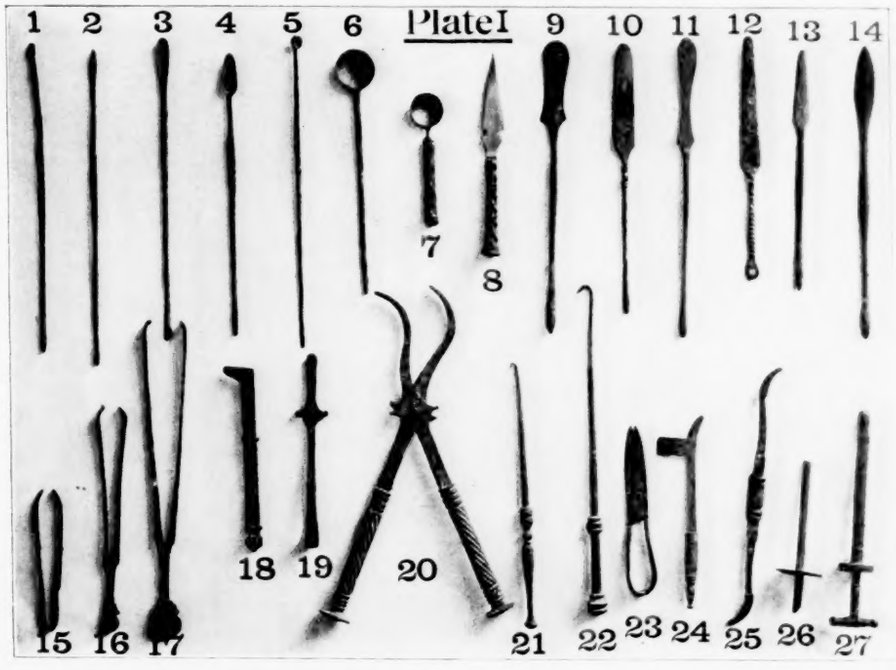

Plate 1.—Pompeian surgical instruments. Figs. 1 to 7, probes and spoons; 8, pincet; 9 to 14, spatula probes, sometimes used as cautery; 15 to 20, various forms of forceps; 21 and 22, blunt and sharp hooks; 23, scissors; 24, veterinary fleam or phlebotome; 25, bone elevator; 26 and 27, cannulas.

treatment of empyema and ascites is shown by two instruments of the collection (Plate I, Figs. 26 and 27), both representing cannulas very similar to the ones in use at the present day. The plain, small one consists of a bronze tube, 3½ inches in length, beveled off on one end. This instrument answers the description of Celsus. The more elaborate form of the cannula for ascites is seen in the other specimen, a tube 3¾ inches in length, one end rounded off and closed except for a small hole near its tip, the proximal end carrying a circular plate, ⅞ inch in length, which carries on its end a small handle attached in a T fashion. To all appearances the cannula was to be inserted after an incision was made by a scalpel, to be closed after the abstraction of a certain amount of fluid. Hippocrates says:

> After opening let pus out once a day. After the tenth day when everything has been evacuated, flush with wine and tepid oil. At night let out what you have put in and when the pus becomes thin and watery insert a hollow thin tube.

Related to the foregoing cannular instruments is a tube of bronze, 5¾ inches in length, ⅜ of an inch wide at one end and gradually narrowing to ⅛ of an inch. It was often made of lead or tin; it is referred to by Hippocrates over and over again. It was used to prevent contractions and adhesions after operations on the nose, rectum, vagina, etc. Hippocrates mentions its use after dilatation of the cervix uteri. The small opening half an inch from the end probably was for the purpose of drawing or applying medicaments (Plate II, Fig. 3).

The instrument illustrating the well-known subject of actual cautery, which was employed to an almost incredible extent in ancient times and on which surgeons expended much ingenuity of device, is a tile-shaped cautery (Plate II, Fig. 1) of bronze (although iron was also employed) and was used as a counter-irritant, as a hemostatic, as a bloodless knife, as a means of destroying growths and tumors, etc. Other forms of cautery mentioned are the cautery knife, a trident olivary cautery for operations on the eye and nose, a gamma-shaped, an oval-shaped, a lunated, a nail-shaped, a button-shaped, wedge-shaped and needle-shaped cautery. Hippocrates also mentions a cautery guarded by a tube for operations of hemorrhoids and polypi of the nose. The catheter was in common use in ancient times and is frequently alluded to. This collection includes a male catheter, 10 inches in length (Plate II, Fig. 2), with two gentle curves closely resembling the instrument reintroduced by Petit in the eighteenth century and corresponding in size to No. 2 American.

It seems to have been the only perfect specimen found, other finds at a Roman military hospital in Baden being but fragmentary. Also a female catheter (Plate II, Fig. 3) is mentioned in the catalogue, which, however, so closely corresponds with a previous description of a dilator (Plate II, Fig. 3) that I am in doubt as to the correct classification, especially as Dr. Milne mentions a female catheter about 4 inches in length (which is, however, not represented in this group) in the Pompeiian collection.

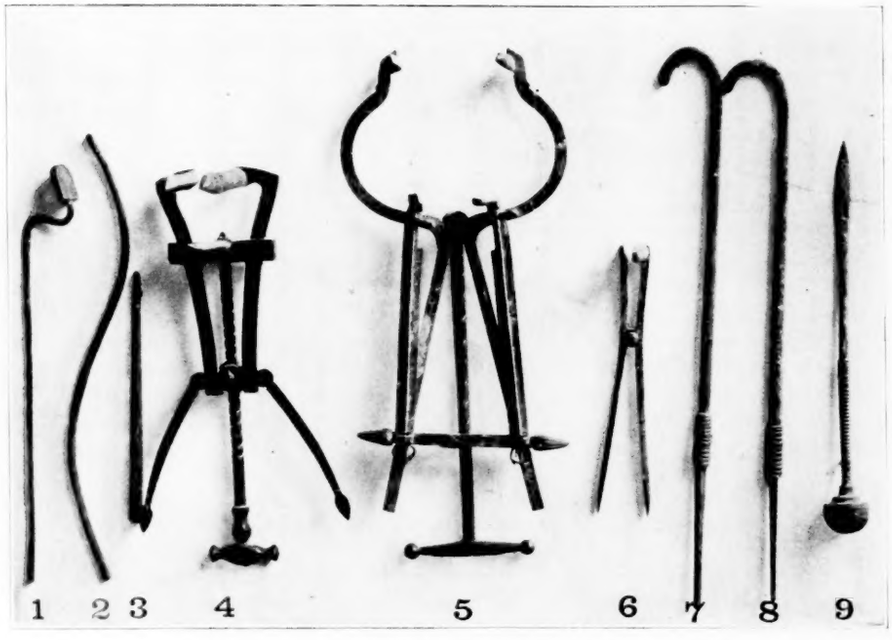

Plate 2.—Pompeian surgical instruments. Fig. 1, cautery; 2, male catheter; 3, drainage tube, also used for other purposes; 4 and 5, specula; 6, dilator; 7 and 8, obstetric traction hooks; 9, feticide, or possibly a seton-needle.

Of the two vaginal specula of this collection the first discovered was found in the House of the Physician (Plate II, Fig. 4). The blades are at right angles to the instrument and when closed form a tube the size of the thumb; on turning the screw a cross-bar forces the two upper blades outward till sufficient dilatation is obtained for operative purposes. The diameter of the tube, at its maximum of expansion, is about 3½ inches, the speculum being 9 inches long. Lately a speculum similar to the foregoing has been found in the ruins. The third speculum in the Naples collection, discovered in 1882, is similar to the foregoing, but has a quadrivalve priapiscus (Plate II, Fig. 5). Its length is about 12 inches; on turning the screw the lower blades are drawn downward, at the same time separating slightly, while the other blades diverge also. It may be noted that the screw in the three-bladed instrument is a left-handed one, while the four-bladed one is a right-handed. This instrument is in a high state of preservation; its construction is uniform and well proportioned, and as a curious fact that it may be observed that in its various dimensions it observes constantly the metric measurement. The earliest mention of the rectal speculum is to be found in the treatise on fistula by Hippocrates—"laying the patient on his back and examining the ulcerated part of the bowel by means of the rectal speculum"; also its use in the treatment of hemorrhoids is mentioned by him.

The two-bladed instrument was used to dilate the vagina as well as the rectum, and received its name, "small dilator," in contradistinction to the other vaginal speculum which was worked by a screw and was called the *speculum magnum*. According to Galen, the anal dilator was called *catopter* and the female dilator the *diopter* (Plate II, Fig. 6). Included in the obstetrical instruments are two traction hooks, 12 inches in length and ¼ inch in diameter, the form of their handle ends indicating a former existence of a bone or ivory handle. They resemble very much the blunt hook of the English obstetrician, William Smellie (1680), and its well-known modification, the decapitation hook of C. Braun, of Vienna (Plate II, Figs. 7 and 8).

The spike-shaped, dagger-like instrument (Plate II, Fig. 9), nearly 9 inches in length, the distal end resembling a large flat needle and the handle ending in a solid, heavy hemisphere, apparently answers the following description by Tertullian:

> There is also a bronze stylet with which a secret death is inflicted; they call it the feticide from its use in infanticide, as being fatal to a living infant. Hippocrates had this instrument, Asclepades and Erasistratus and of the ancients, also Herophilus the anatomist, and Soranus, a man of gentler character, who, being assured that a living thing had been conceived, mercifully judged that an unfortunate infant of this sort should be destroyed before birth to save it from being mangled alive.

I doubt whether this description applies correctly to this particular instrument, as it will not explain the large eyelet, which would indicate its use as a seton-needle.

A meditative glance over the instruments of this collection and similar ones gives the impression that surgery at the time of the destruction of Pompeii was confined, to a great degree, to minor surgery, and that the art of surgery in respect to more important operations, as indicated by the description of operations and instruments, compared with modern achievements, was coarse and undeveloped. Truly we find that at this period Cesarean section, extirpation of the uterus, laparotomy, lithotomy, excision of the kidneys, herniotomy, and plastic operations were performed, but that the limited knowledge of anatomy and physiology was a hindrance to successful major operations.

To antisepsis and anesthesia are due a complete revolution of earlier methods and complete reversal of mortuary statistics; to these discoveries the human race owes more of the prolongation of life and relief of suffering than can be estimated or terminated in words.

Little by little during the past ages the building-stones were added to the foundation laid by the ancients for the construction of our present monumental edifice of modern surgery, in spite of innumerable hindrances plotted by ignorance and malice, until now at the beginning of the twentieth century "the seeing portion of healing art," as Chamisso terms it, is approaching an exact science to which every other branch of science has been made tributary.

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TREATMENT OF DIFFUSE SUPPURATIVE PERITONITIS

WITH SPECIAL REFERENCE TO ENTEROCLYSIS AND DRAINAGE THROUGH THE CECUM *

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Since the dawn of the era when the abdominal cavity began to be invaded, the fear of peritonitis has been the dominant factor retarding the advancement in this field of surgery.

After the discovery of the germ theory of infection the fear was of the liability of infection from without, but after the perfection of methods calculated to avoid infection from without the surgical mind was dominated by a dread of infection from pathologic material found within the cavity, and in late years the sole purpose has been to formulate a rational pathology and treatment that would enable us to cope successfully with this condition. These efforts have been so abundantly rewarded that to-day we are usually able to suspect or to diagnose diffuse suppurative peritonitis in its earliest stages and to enter on its treatment with an assurance that a vast majority of the patients may be saved.

In infection of the peritoneum there are complications that we now dread more and deal with less successfully than suppurative peritonitis, viz., pylephlebitis involving the ileocecal and portal veins, with multiple thrombotic infection of the liver and spleen and retroperitoneal infections, conditions occasionally met in appendicitis and in perforating or suppurating conditions of the abdominal viscera or tissues.

The treatment of diffuse suppurative peritonitis may be formulated under four heads as follows:

1. Releasing from the peritoneal cavity infectious material held under pressure.

2. Repair or correction with the greatest speed and the least intra-abdominal manipulation possible the lesion responsible for the infection.

3. Drainage of the peritoneal cavity, an important feature of which is maintaining the patient in Fowler's position.

4. Dilution and elimination of toxins and anticipating shock by the introduction of large quantities of physiologic salt solution into the circulation, best accomplished by some form of enteroclysis.

It is an old axiom that when pus is found it should be removed. We have learned, however, that pus in itself is not a dangerous element; that it is only when held under pressure that absorption occurs sufficiently to cause serious symptoms, and that even when absorption does occur the symptoms produced are due to entrance into the circulation of micro-organisms and their toxins floating in the fluid or encompassed by the leucocytes in their phagocytic action.

Pus, in fact, is an element of safety, indicating an attempt on the part of Nature to protect the body from invasion of organisms and their products dangerous to life. Therefore, when we encounter pus in the abdominal cavity we are not filled with consternation, as operators were under such conditions in former days.

This knowledge, together with that obtained by animal experimentation in regard to the absorption of bacteria in the peritoneal cavity, lays the foundation for a rational procedure in dealing with pus in the free abdominal cavity and for reducing intra-abdominal manipulations to the minimum. Handling the intestines in an effort to free the abdominal cavity from pus distributes bacteria in the direction of the diaphragm where absorption is most likely to occur.

Pus held under pressure should be released by incision, but the surgeon should not be guilty of the crime of mopping and irrigation. No effort need be made to get rid of the pus; Nature will take care of it if proper drainage is established.

We cannot be reminded too often of the experiments of Buxton[1] and other investigators regarding the absorption of bacteria by the peritoneum.

In these experiments on animals, typhoid and colon bacilli were introduced into the peritoneal cavity. Within five minutes they were found in the blood in great numbers, also in lesser numbers in the liver and spleen. A great number were found in the lymph-nodes of the anterior mediastinum, which they reached from the diaphragm, where absorption occurs most rapidly. It was demonstrated that there was practically no absorption by any other part of the peritoneum besides the diaphragm and omentum; the parietal, visceral and mesenteric peritoneum did not seem to possess this power to any considerable degree.

It was also observed that death did not result from the absorption of bacteria or cocci themselves, but from the toxins within these organisms (endotoxins) liberated by the destruction of micro-organisms in the blood. In streptococcal infection death does not occur so soon as with typhoid or colon bacilli infection, because the cocci are destroyed less rapidly; consequently more time must

* Read before the Tri-State Medical Society (Illinois, Iowa and Missouri), Quincy, Ill., Sept. 14-15, 1909.

1. Buxton, B. H.: Jour. Med. Research, 1906, xv, 3; 1907, xvi, 17.

elapse—at least twenty-four hours—for their extensive multiplication and reinfection of the blood.

If absorption of micro-organisms occurs almost wholly by the peritoneum of the diaphragm, it is evident that mopping and irrigation will spread infection toward the diaphragm and lessen the chances of the patient's recovery. For the same reason, if the patient is put in the Fowler position, his chances for recovery are increased.

Drainage of the peritoneal cavity is accomplished by placing a rubber tube in the costal gutter below the kidney and one or two good-sized drains into the pelvis. The patient is then placed in the Fowler position and maintained in this position for three or four days, or until the symptoms of sepsis disappear.

We cannot overestimate the importance of keeping the patient in Fowler's position, and yet its accomplishment is attained with some difficulty. A number of kinds of apparatus have been devised for the purpose of procuring drainage, including the arm-crutches of Eisendrath, McGuire's device for elevating the head of the bed and my double inclined plane apparatus (Fig. 1). These are all useful and may be employed successfully, but one cannot always have such appliances at hand. A simple appliance always at hand is a necessity. For ordinary cases a bed-sheet may be used, folded diagonally and re-enforced in the middle by placing over it, like a saddle, a thick pad, which is placed against the buttocks and posterior surfaces of the thighs, and the ends of the sheets tied to the bed-posts near the mattress (Fig. 2).

In a paper[2] read before the Illinois State Medical Society, May 19, 1909, I spoke of some of the difficulties attending the administration of physiologic salt solution by proctoclysis as recommended by Dr. Murphy, and of the possibility of giving this solution directly into the colon through the appendix or through an incision in the cecum.

In a case of acute perforating gastric ulcer of forty hours' standing,[3] Lennander, of Upsala, who operated successfully, besides doing a temporary gastrostomy, placed a drainage-tube through an incision into the cecum and retained it there five weeks. This operation

Fig. 1.—Double inclined plane shoulder-and-leg rest for maintaining patient in Fowler's position.

("typhostomy"). Lennander says, helps to prevent paresis of the intestines and affords an efficient means of supplying nutrition.

This procedure of Lennander, together with the previous suggestion of Weir, that the appendix could be used in like manner for irrigating the colon in cases of amebic dysentery and mucous colitis, suggested to my mind the feasibility of employing the same method for enteroclysis in diffuse suppurative peritonitis.

I have employed this method in two cases.[4] One was a case of acute perforating gastric ulcer, in which I operated at the Rockford City Hospital, May 21, 1909, twenty-four hours after the perforation occurred. The other was a case of acute perforating gangrenous appendicitis, in which I operated at the same hospital, May 22, 1909, two days after perforation. Both cases were complicated with diffuse suppurative peritonitis. In the first case the patient made a good recovery. In the appendix case the patient died five weeks after operation from multiple abscess of the liver due to pylephlebi-

Fig. 2.—Patient held in Fowler's position by twisted sheet. By using comforts and pillows the shoulder-rest may be dispensed with. C, catheter held in cecum by sutures; I. P., glass irrigating point; T, thermometer. Temperature of solution 100 to 110 F.

tis involving the ileocecal and portal veins. There was no attempt in either case on the part of the peritoneum to limit the spread of infection. In the case of perforated stomach the pelvis and lower abdomen were filled with pus and gastric contents.

In the appendix case, pus was free in the abdomen, and, besides a gangrenous and perforated appendix, the tissues of the lower cecum showed a reduced vitality. Yet the peritonitis in both cases disappeared very rapidly under this treatment. Normal bowel movements began within nineteen to twenty-four hours after the operation, and the amount of salt solution introduced into the colon had to be reduced on account of frequency of bowel evacuations.

An important feature in this method of enteroclysis is the employment of the catheter in the cecum as a means of draining and irrigating the alimentary canal. A pint to a pint and a half of salt solution was slowly introduced into the colon every two hours. But each time the solution was introduced the hemostatic forceps that clamped the catheter during the intervals was released and free liquid fecal evacuations were secured through the catheter into the pus basin. By this procedure much gas and bacteria-laden feces were withdrawn from the intestine.[5] It is of especial importance to continue this procedure until free bowel evacuations are secured through the rectum.

In both of my cases the appendix was amputated, the catheter introduced into the colon through the appendix stump and secured by a linen purse-string suture at its base. But the same results may be secured by making a

2. Allaben, J. E.: Surgical Treatment of Perforating Gastric and Duodenal Ulcer with report of a Case of Perforating Gastric Ulcer; Recovery, Ill. Med. Jour., August, 1909.

3. Lennander, K. G.: Temporare Gastrostomie bei Magen- oder Duodenal-Geschwüren, besonders bei perforierten Geschwüren mit gleichzeitiger Retention, Deutsch. Ztschr. f. Chir., 1908, xc, 297.

4. Three days after my paper was read, an article was published by Dr. Charles A. L. Reed, of Cincinnati (THE JOURNAL A. M. A., May 22, 1909, p. 1659), entitled Cecostomy and Continuous Coloclysis in General Peritonitis and Other Conditions. Dr. Reed recommends that cecostomy rather than appendicostomy should be adopted as the operation of choice.

5. If preferred, the hemostatic forceps may be discarded and the colon drained through the catheter into a pus basin or into a receptacle beneath the bed.

small incision in the anterior wall of the cecum and introducing the catheter through this artificial opening. The cecum is secured in its position by two catgut sutures which pass through the parietal peritoneum and through the serous and muscular coats of the intestine (Fig. 3).

OBJECTIONS TO THE OPERATION

Three possible objections to this procedure suggest themselves:

1. Leakage of physiologic salt solution and feces into the peritoneal cavity.
2. Complications from a fixed condition of the cecum.
3. Persistent fecal fistula.

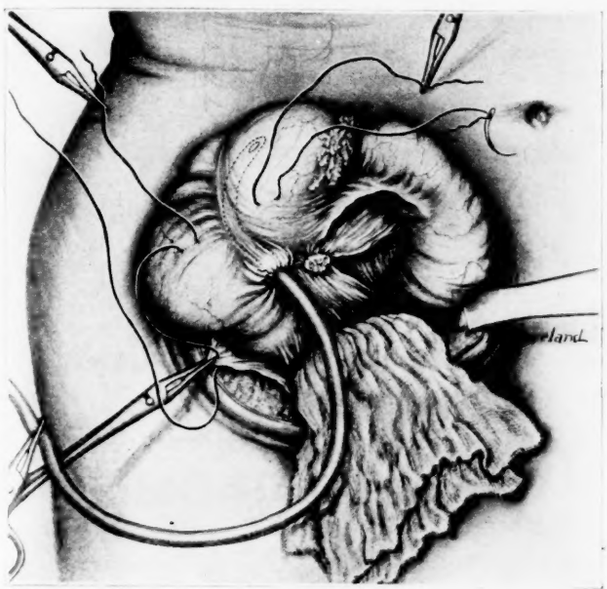

Fig. 3.—Catheter inserted into cecum through stump of appendix and secured by purse-string suture. On one side is shown stay suture passing through parietal peritoneum and serous coat of cecum ready to tie after the intestine has been replaced within the abdomen. The appearance of wound after operation, and method of giving salt solution, are shown in Figure 2.

As an extra precaution against leakage a fine catgut suture is passed through the serous and muscular coat of the cecum or appendix stump and through the wall of the catheter, so that the catheter cannot be displaced during movements of the cecum.

The relation of the cecum to other viscera is such and naturally so limited in its movements that intestinal obstruction or other complications could hardly occur as a result of being fixed by suturing.

The fear of persistent fecal fistula has a more rational foundation.

In my fatal case a fistula, through which considerable quantities of fecal matter discharged, persisted until death, the illness covering a period of five weeks. In this case, however, the vitality of the cecum was much impaired by the local and constitutional infection, which caused necrosis of the tissue, held in the grasp of the purse-string suture causing it to slough away, leaving an unusually large opening. Where the stump of the appendix can be utilized, the danger of fistula, I believe, is less than where an incision is made into the cecum. It is likely that with greater experience a technic will result rendering persistent fistula improbable. Many cases of diffuse suppurative peritonitis are so desperate that the possibilities of a secondary operation for the relief of fistula is of minor importance.

ADVANTAGES OF THE OPERATION

1. Large quantities of hot normal salt solution may be rapidly introduced into the circulation, immediately after operation, overcoming shock, quenching thirst and eliminating toxins.
2. The solution is brought immediately into contact with that portion of the alimentary canal most favorable for absorption.
3. Intestinal paresis from gas retention is avoided and early normal evacuation of the bowels secured.
4. Early relief of toxemia is secured by drainage through the catheter of bacteria-laden feces.
5. The unpleasant and uncertain features of proctoclysis are eliminated, and predigested foods may be administered in definite quantities.

CENTRAL FLAP IN EXPOSURE OF BRAIN

EXPERIMENTAL STUDY ON MONKEYS *

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The history of craniotomy, the oldest known operative procedure, extends back into the dim stone ages, as shown by the mute but conclusive evidence of operative interference in collected prehistoric skulls to be seen in several bureaus of ethnology.

The older writers, including Hippocrates, refer to the great antiquity of the operation, but of course, they never dreamed that it could be traced back with the earliest relics of man. The ancients used the operation for letting out evil spirits, bad humours, in order to relieve violent, uncontrollable headaches, etc.

The technic of the operation and indications for its use are given by many of the medical authors of medieval times, and of those of the Renaissance. Others than medical writers also refer to the operation.

Balsac in his work on Katherine de Medici interestingly describes the famous Ambroisé Paré at his midnight lamp, experimenting in trepanning a newly dug up skull preparatory to an intended mastoid operation on King Francis II. Katherine, however, wishing her son's death, objected to having his skull pierced as if it were a piece of board.

Figs. 1, 2 and 3.—1. Temporal flap. 2. Occipital flap. 3. Frontal flap.

Except for the modifications of the instruments used, from the stone flint to the modern trephine, the operation itself remained the same for ages until Wagner, to whom not enough credit can be given, preceded by Wolf's animal experimentations in introducing the bone flap, with one bold stroke revolutionized cranial surgical technic, making possible the phenomenal work of Krause, Hartley, Cushing and others.

The object of this research by us was to ascertain whether extensive central flaps for wide exposure of brain could be made. Very large flaps were cut, including almost the entire vault of the skull.

Three types of flaps were used: a frontal, a temporal, and an occipital (Figs. 1, 2 and 3).

* From the Hull Physiological Laboratory, University of Chicago

African monkeys of the species *Rhesus* were used.

EXPERIMENT 1.—July 15, 1909. Female *Rhesus*.

Anesthesia.—Ether.

Operation.—After the most careful preparation a temporal flap incision was made as in Figure 1 down to the bone, which was opened by trephine and Gigli-saw and broken on the side of the flap. There was no injury to the longitudinal sinus. Flap replaced. Very little ether was needed. Extremities tied and dressing applied.

Postoperative History.—Second day after operation the other monkeys, reaching through from the next cage, tore off the dressing, pulling out a few stitches on the anterior limb of the incision. Wound otherwise perfect. No edema. Later, in healing, the wound separated where the stitches were torn out, and as it refused to granulate over it was sutured and healed with primary union. Except for some slight sluggishness the first few days after the operation, the monkey appeared as well as usual. December 15, the animal was used for other experimental work and died two days later.

Post-mortem.—Prof. A. J. Karlson, who performed the autopsy, found that the flap had united firmly. There were no sequestræ, and no dural adhesions.

Fig. 4.—Photograph showing wide extent of flap.

EXPERIMENT 2.—July 24, 1909. Male *Rhesus*.

Anesthesia.—Ether.

Operation.—In this case we used the frontal flap (Fig. 3). Technic as in the previous case. No injury to sinuses. Very little anesthesia needed.

Postoperative History.—Wound healed with primary union. Animal shows no untoward symptoms from the operation.

EXPERIMENT 3.—August 16, 1909. Female *Rhesus*.

Anesthesia.—Ether.

Operation.—Occipital flap; no injury to sinuses. Very little anesthesia used.

Postoperative History.—Wound healed with primary union. Died five weeks after operation from pulmonary and intestinal tuberculosis.

Post-mortem.—Bone flap was healing nicely; no sequestræ and no dural adhesions.

The experiments are few but sufficient to demonstrate that large cranial flaps may be made successfully in monkeys and probably also in man.

These animals are very easily kept under anesthesia, and take very little ether.

In buying monkeys let the seller guarantee the health of the animal, as many have pulmonary tuberculosis.

GUTTA-PERCHA TISSUE IN SURGERY

JACOB FRANK, M.D.

Surgeon to the Columbus and the Michael Reese Hospitals

CHICAGO

Having observed that the men in general practice with whom I come in contact are for the most part unfamiliar with the use of gutta-percha tissue in surgery, I felt that it might be worth while to call attention to this agent.

This unfamiliarity is explained by the fact that practically nothing is said about gutta-percha tissue in textbooks of surgery, and that past and current medical literature presents the same dearth of information on the subject.

In order that the experience of others might be included in this presentation, inquiries as to its uses were sent to a number of men prominent in surgical

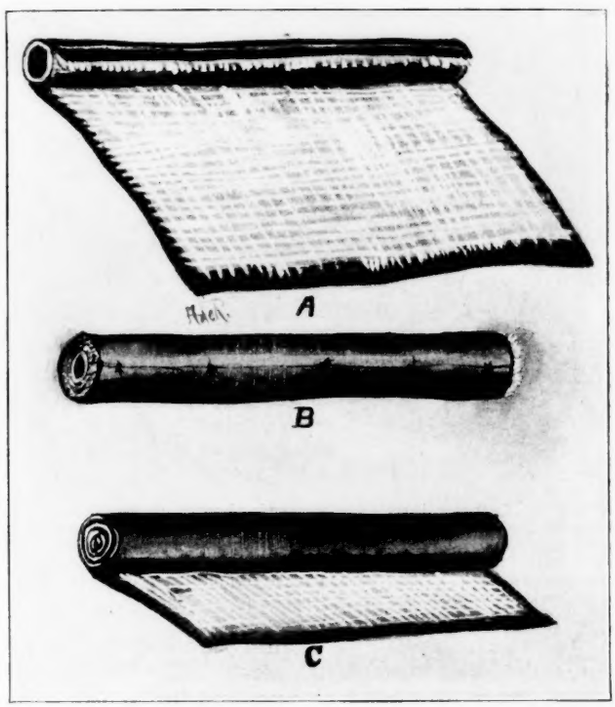

Fig. 1.—A, method of wrapping rubber tube with gutta-percha tissue and gauze; B, same completed for gall-bladder drain, showing interrupted catgut sutures; C, simple laminated drain gutta-percha tissue and gauze.

work, in the United States, Canada and England. Forty-nine replied. Of this number, twenty-six make use of it in various ways and find it satisfactory. One considers it inferior to oiled silk because of its impervious quality. One believes it insanitary because it cannot be boiled. Four employ it only for cigarette drains. Sixteen, or one-third of those replying, state that they have had no experience with it and can give no information concerning its uses.

In the few instances in which mention is made of gutta-percha, it is spoken of as rubber tissue, which is misleading to many, as gutta-percha and rubber are substances of different nature and possess entirely different qualities.

Gutta-percha is unique, in that it is available for more uses than any other one material required by the surgeon for the repair and preservation of body tissue. If the direction of the fibers be followed, gutta-percha tissue will tear in a straight line without the use of scissors.

To wash gutta-percha tissue, hot water must not be used.

It is a well-established principle in surgery that repair of tissue is fostered by protective agents, in proportion as such agents are free from chemical or traumatic influences. Of the several articles available for drainage and protection of adjacent structures, gutta-percha

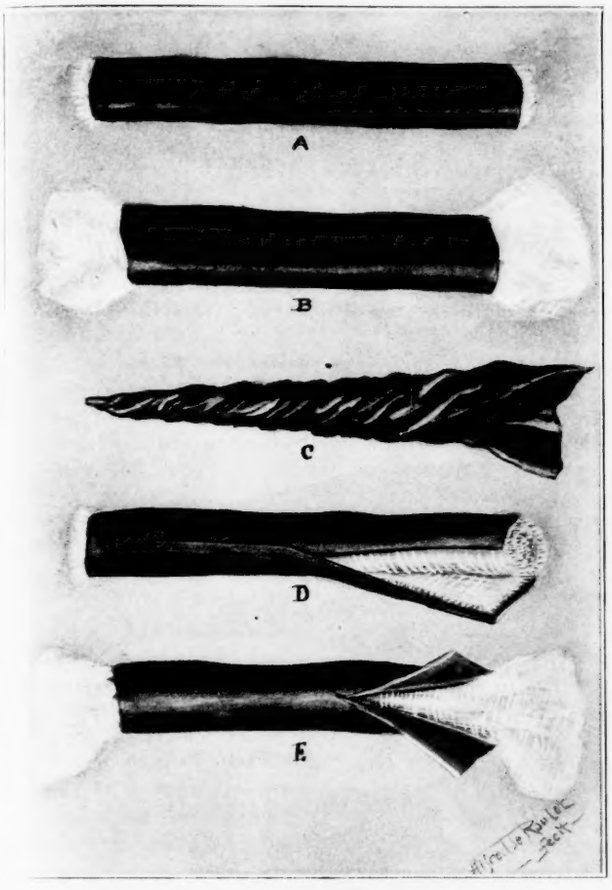

Fig. 2.—A, simple cigarette drain; B, simple cigarette drain, gauze rejecting, used for tampon and drain; C, gutta-percha tissue spiral drain; D, simple cigarette partly opened, showing structure of A; E, partly opened showing structure of B.

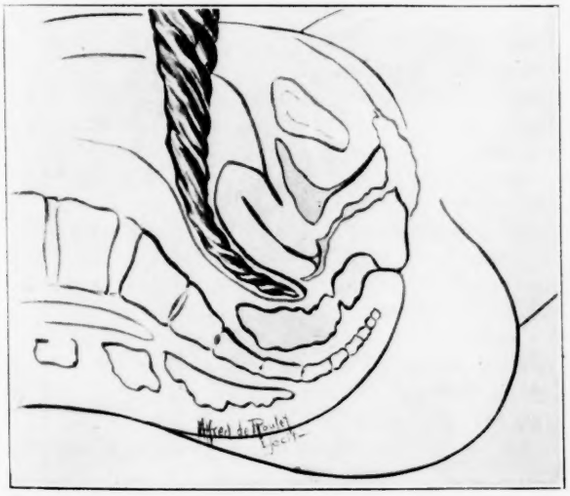

Fig. 3.—Gutta-percha tissue spiral as drain in pouch of Douglas.

tissue, because of its possession of these properties, is a valuable aid in surgical work. The non-irritating qualities of gutta-percha tissue attracted my attention, and induced me to use it in divers ways, that after a wide experience, have convinced me of its utility in many fields, of its value to the surgeon and the assurance of desired results.

Gutta-percha is a vegetable product, derived from the inner bark and leaves of a tree that was formerly supposed to be limited in its distribution to a territory extending from 92 to 119 degrees east longitude, and from 6 north to 6 south latitude. In 1903 the United States government commissioned Dr. L. Sherman Pennoyer, Jr., to make some investigations regarding

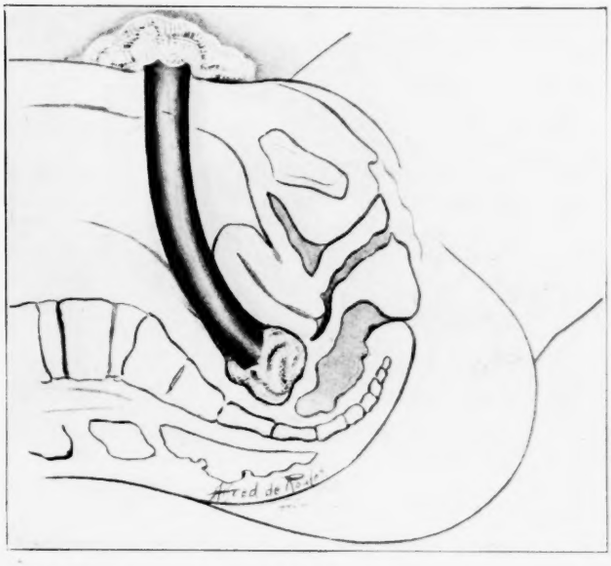

Fig. 4.—Cigarette drain made with gauze extension, in pouch of Douglas.

Fig. 5.—M, Mikulicz drain; G, gauze strips; G P, gutta-percha tissue spirals.

gutta-percha. Dr. Pennoyer learned that gutta-percha was found also in the Philippines, Celebes, Java and the northern half of the Malay Peninsula.

A great deal of confusion and financial loss has occurred in commerce because of the mistake of considering gutta-percha and rubber identical substances. While there are points of similarity between them, the difference is such that they are not available for the same uses. Of the points of difference it may be noted that

the one is elastic, the other plastic; that rubber can be vulcanized, but gutta percha is refractory to such treatment.

Gutta-percha was first brought to Europe in 1656 by John Tradescant, traveler, scientist and naturalist, who was head gardener to Charles I. Tradescant called it "mazer wood" and, although it attracted some attention

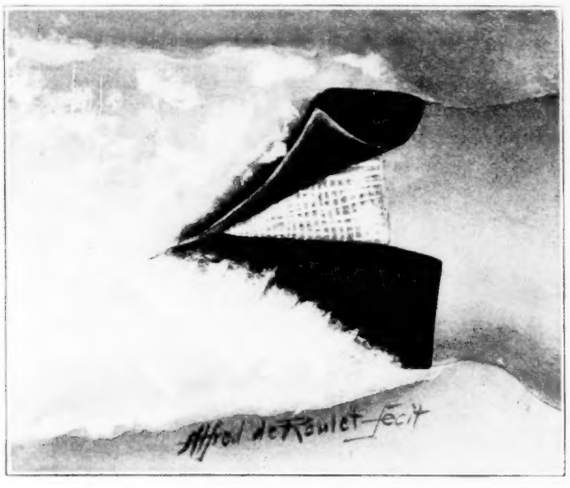

Fig. 6.—Plan of moist or dry occlusive dressing; ends open, showing arrangement.

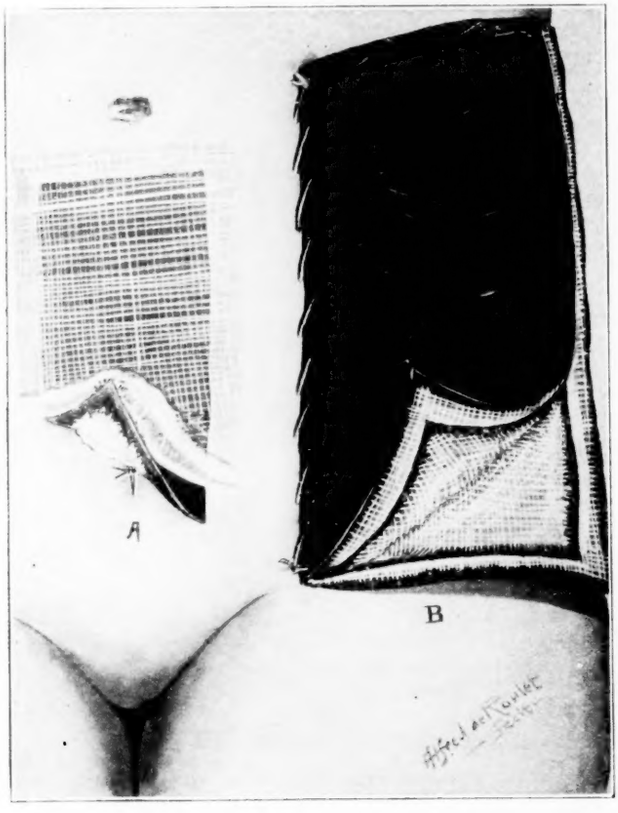

Fig. 7.—A, cotton, gutta-percha tissue and gauze, sealed with collodion, to protect abdominal incision; B, pad for isolating infected wound.

as a curiosity, it was not considered an article of practical value.

Almost two hundred years elapsed before gutta-percha was again brought to the notice of western civilization, when it was given a prominence that was not sustained by subsequent experience.

In 1832 there was stationed at Singapore, as English resident physician, Dr. William Montgomery, an observing man, who noticed that the natives used gutta-percha for whips and handles of tools. Discovering that immersion in hot water rendered it susceptible to being molded into different shapes which were retained on cooling, he

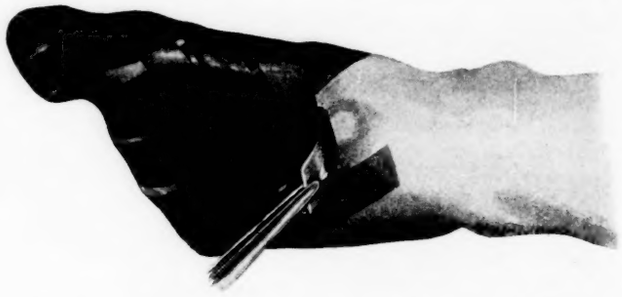

Fig. 8.—Gutta-percha tissue strips used for protecting Thiersch grafts, one strip turned back to show graft.

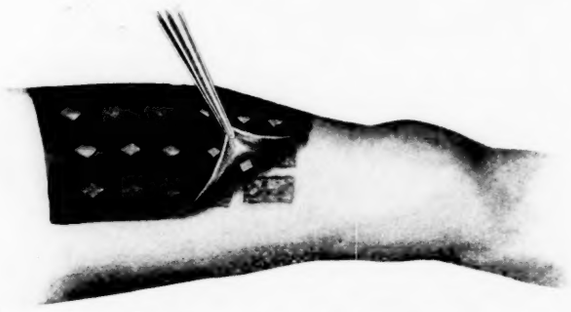

Fig. 9.—Perforated gutta-percha tissue for protection of surface, after removal of Thiersch grafts for burns and denuded surfaces.

Fig. 10.—Gutta-percha tissue used for pattern in plastic surgery.

conceived the idea of making surgical appliances that might take the place of those made of caoutchouc, which tended to become soft and useless in the warm climate of Singapore. In 1843 Dr. Montgomery reported the results of his experiments with gutta-percha to the Medi-

cal Board of Calcutta, sending three bougies which he had made by rolling the warm gutta-percha on the table with his hands.

That Dr. Montgomery was a prudent man is evidenced by a portion of his letter to the Calcutta board, in which he says: "I have not been able to get the flowers or fruit of the tree producing this gutta; the situation from whence the specimens I have obtained were produced is about six miles from the town of Singapore, at a place much infested by tigers, and to which it is necessary to proceed on foot. So it would be a venture of some risk to proceed to the spot on foot." With seemingly no idea of being humorous, the doctor continues that he has offered a reward which he hopes will tempt some one to face the tigers. A similar report was sent to London, and Montgomery was awarded a gold medal by the Royal Society of Arts for his contribution to science.

The tree attains a height of one hundred feet, and from the point of view of the natives was of not much value until it had reached an age of thirty years. Their method of collecting the gutta-percha was an extremely extravagant one and threatened the extinction of the species. The native method was to fell the tree, quickly cut away the branches, and make a series of lateral excavations in the uppermost surface of the fallen trunk, into which seeped the milky exudate, which, when it had hardened, was scraped out and carried to the market. Both the English and Dutch governments enacted laws that aimed to stop so wasteful a method, but it was not possible to exercise much control over the native population, so that as a result of their primitive methods some of the varieties became almost extinct.

A method of incising the bark of the standing tree was finally devised, which proved successful, and did not injure the tree. Later it was found that the leaves were profitably productive when properly treated. It remained for the United States Commission, under the supervision of Dr. Pennoyer, however, to devise a method of recovering the gutta-percha by means of hot gasoline, which has proven a success.

At the time of Dr. Montgomery's introduction of gutta-percha, efforts were being made to find something that would be of sufficient protection to submarine cables to render them practicable for prolonged use. In 1847 Werner von Siemens, a German, experimented with gutta-percha and found it to be the much-sought-for substance, water and the high pressure of the deep sea improving its insulating and lasting qualities.

In 1846 Alexander Cabriol took out several patents on articles made of gutta-percha for surgical uses. In 1849 a committee composed of Chevalier, Poiseuille and Robert presented a report on gutta-percha surgical instruments to the Academy of Medicine, Paris. Here we find the first mention of gutta-percha tissue, which was termed "laminated sheets," in which Cabriol had ingeniously incorporated various metallic powders. The committee called attention to the resistance offered by gutta-percha to chemical agents, and the fact of its not being affected by prolonged contact with irritant or putrescent liquids of the human body, such as urine, fecal matter, vaginal discharges, etc.

In 1856 Dr. A. Manoury,[1] surgeon to the Chartres Hospital, published an article explaining the use of plates of gutta-percha, 1 mm. thick, incorporated with iron filings, which he used for covering old ulcers, discharging wounds and sores of the sacral regions in heavy fevers.

In 1872 Dr. A. Cousin[2] reports a new method of making occlusive dressings. "A surface of the skin being required to recover, I cut a piece of gutta-percha leaf, of a size double or treble this surface; the edge of this is wetted for 1 or 2 cm. with chloroform and is applied immediately to the skin; adherence is made with great energy at all the points touched by chloroform, and with such perfection that the least irregularities on the skin are molded with remarkable fidelity in the thickness of the impermeable stuff. The gutta-percha is reduced by lamination into leaves as thin as waxed silk."

Gutta-percha was used extensively for splints, and many papers describing its uses were written by European and American surgeons. One of the most interesting papers I found was read by Carey of Dayton, Ohio, before the Montgomery County Medical Society in 1851. As a splint material it was superseded by plaster of Paris and other appliances, and with this change its mention in medical writings almost entirely disappeared.

Gutta-percha tissue possesses certain advantages over oiled silk, in that it is free from odor, is more pliable and is not disintegrated by body temperature and moisture. The point made by one surgeon, that in case of a suppurating wound it confines the purulent exudate too closely to the dressing, is untenable, as saturation of a dressing terminates its usefulness and indicates a change. This means more work for the caretaker, but likewise means better surgery. Replying to the statement that it is insanitary because it cannot be boiled, it will be shown that gutta-percha tissue can be simply and readily sterilized.

One of the most common uses to which gutta-percha tissue lends itself is in the application of both the dry and moist occlusive dressing.

When it was understood that a poultice possessed no drawing powers other than capillary attraction, there remained no excuse for its employment, if a substitute could be found that would combine its heat-and-moisture-retaining qualities. Because of its impermeability to water and its poor heat-conducting property, this tissue, placed over hot moist gauze, makes complete the clean and simple substitute for the troublesome poultice.

The dry occlusive dressing, consisting of gutta-percha tissue applied over either dry cotton or gauze, possesses to a slighter degree the same properties as the moist occlusive dressing.

In dealing with an arthritis or a cellulitis, which is free from pus, hot or cold moist gauze is applied and covered with gutta-percha tissue. Over this one or more layers of cotton, and, for keeping in place, a soft or hard roller. This constitutes a moist occlusive dressing, which also is an admirable application for a suppurating wound. The pus is confined to the gauze beneath the gutta-percha tissue; the outer dressings and bandages are kept dry and clean; infectious material is not distributed broadcast over the bedding and patient's body and gown.

With this dressing we obtain the benefit of heat and enough moisture to keep the parts pliable and encourage the blood-vessels and lymph-vessels to perform their function of carrying phagocytes to, and the dead cells and bacteria away from, the injured tissues.

1. Manoury, A.: Bull. Gen. de thérap., 1856, xxx, 29-32.

2. Cousin, A.: Bull. gén de thérap., 1872, xxxii.

In dressing a digit, the dressing with its gutta-percha covering is best secured by wrapping about it either the surgeon's tape, which is not loosened by water, or adhesive plaster, which must be kept dry.

In plastic operations, when transferring large grafts, gutta-percha tissue makes an excellent pattern. It is sterile, retains its shape and is sufficiently pliable to adapt itself to the surface where the incision is to be made.

For the protection of the incision of an operation for hernia, which is liable to be soiled by urine, the line of incision is first covered by a very thin layer of cotton, the fibers of which have been teased apart to reduce its thickness. A sheet of gutta-percha is now applied, and over this is placed a strip of gauze which should extend half an inch to an inch beyond the borders of the gutta-percha covering. The dressing is then sealed with collodion. In male patients the distal end of the gauze is divided, the divided ends carried around the penis and sealed with collodion to the scrotum.

For skin grafts, the gutta-percha tissue is cut into narrow strips and applied directly to the newly grafted surface. The strips are made of sufficient length to extend a short distance over the healthy skin, which is first given a coating of sterile zinc salve. No medicament is applied to the grafts. The grafted surface is then covered with dry gauze or with gauze wrung out of a normal salt solution at a temperature of 100 degrees F. The gauze dressing is removed daily and any exudate which appears between the strips of gutta-percha is carefully wiped away with camel hair brushes dipped in sterile normal salt solution. The denuded surface on the thigh, from which the grafts were obtained, is coated with sterile zinc salve and covered with a perforated sheet of gutta-percha tissue, over which dry gauze is applied.

The perforations of the gutta-percha may be made by folding the sheet in the manner of an accordion pleat and cutting out small sections with a scissors. Or the integrity of the sheet may be better preserved by making the perforations with an ordinary harness-maker's punch.

When it is desired to isolate an infected area, it can readily and effectually be done by making a pad of alternate layers of gutta-percha tissue and gauze which is placed over the infected area and stitched to the surrounding healthy skin.

This plan is applicable in case of fecal fistula, where an anastomosis for its cure is to be performed. The line of the new incision is protected in the manner described for hernia.

Because of the trauma inflicted by rubber tubing, which of necessity remains for a protracted period in a wound, it would seem advisable to substitute gutta-percha. This substitute is made by folding one or more sheets of gutta-percha tissue, which is made into a spiral by twisting. This form of drain is easily made to follow even a sinuous tract, and can be removed and a fresh one inserted without distress to the patient, and without in any way injuring the budding cells.

For draining the gall-bladder, the ordinary rubber tube, without being perforated, is wrapped, by placing a single layer of gauze over a sheet of gutta-percha, and taking three or four turns about the tube. This covering should not extend quite to the end of the portion of the tube that is placed within the gall-bladder, as there might be a possibility of its slipping and thus obstructing the lumen of the tube. The Mikulicz drain may be modified and its value enhanced by introducing with the packing a number of cigarette drains. Its pressure qualities are thereby better preserved and its drainage qualities augmented.

In other cases the gutta-percha tissue spiral may with advantage be introduced into the sack of the Mikulicz drain. Where there has been a denudation requiring the use of the tampon the cigarette drain with the gauze extending beyond the gutta-percha covering may be used with advantage. These modifications of the Mikulicz drain facilitates its removal, adds to the comfort and hastens the recovery of the patient.

As a covering for burns, ulcers or granulating surfaces, perforated gutta-percha tissue protects the abraded surface and permits the escape of any exudate that may be present.

That gutta-percha tissue may with perfect safety be left permanently within the body was demonstrated by Abbe, who, in 1903, reported the successful use of gutta percha tissue in an operation for the removal of the Gasserian ganglion, which he had performed fifteen years previously. Abbe has used it on the surface of the brain, between the dura and skull and between the skull and scalp. In all of these positions he found that it retained its shape and gave rise to no untoward symptoms.

In cases in which the moist blood-clot of Schede is employed I substitute gutta-percha tissue for the oiled silk recommended by him.

The above is far from being a complete list of the uses of gutta-percha tissue. It finds a place in any surgical procedure in which drainage is required.

In 1899, after reading an article by Richardson,[3] describing the sterilization of rubber gloves with formaldehyd gas, it occurred to me that gutta-percha tissue could be sterilized in the same manner. The experiments were carried out in the laboratory of the German Hospital. Those experiments showed that gutta-percha tissue could be sterilized in two hours with the fumes of formaldehyd.

Dr. S. Strouse, assistant pathologist to the Michael Reese Hospital, under the supervision of Dr. J. W. Jobling, has kindly carried out, at that institution, the following experiments with gutta-percha tissue, which was taken from an original package bought in the open market.

Small pieces, about 1 cm., were cut under aseptic conditions from various parts of the tissue and suspended in sterile broth at 37.5 C. for twenty-four hours. Only one piece showed no growth. One gave a pure culture of *Micrococcus pyogenes aureus* and others gave a culture of a long spore-bearing bacillus.

Pieces of the same size were next suspended in antiseptic solutions as follows:

1. Bichlorid of mercury	1 to 1000	
2. Bichlorid of mercury	1 to 2000	
3. Phenol	1 to 20	—(5 %)
4. Phenol	1 to 40	—(2.5 %)
5. Liquor cresolis compositus	1 to 50	—(2 %)
6. Liquor cresolis compositus	1 to 100	—(1 %)
7. Alcohol	95 %	
8. Alcohol	47 %	

They were allowed to stand in closed sterile dishes at room temperature for twenty-four hours, then removed with sterile forceps, washed thoroughly in sterile distilled water and transferred to tubes of bouillon, in which they were incubated at 37.5 C. for twenty-four hours. Tubes 3 (phenol 5 per cent.) and 7 (alcohol 95 per cent.) showed growths of an organism similar to the

3. Richardson: New York Med. Jour., June 24, 1899.

one found in the original gutta-percha package. The other tubes were sterile. Pieces were also taken from other parts of the gutta-percha package and suspended in a broth culture of *Micrococcus pyogenes aureus* for forty-eight hours and then allowed to remain for twenty-four hours at room temperature in the antiseptic solution as given above.

After washing in sterile water the pieces were transferred to bouillon and incubated for twenty-four hours at 37.5 C. In this experiment, which was repeated with very small pieces (3 by 2 mm.), no growth resulted in any case.

The same experiments were then undertaken with an actively growing pure culture of *B. subtilis* in bouillon. The effects of the disinfectant after twenty-four hours showed striking contrasts. Both solutions of *bichlorid of mercury* effectually killed the organism; but in no other case were the other solutions efficacious.

Phenol, 2.5 per cent., allowed more growth than 5 per cent. liquor cresolis compositus, 1 per cent. allowed more growth than 2 per cent. alcohol, 95 per cent. allowed more growth than 47 per cent. The experiment was repeated, allowing the gutta-percha soaked in the bacterial growth to remain in the antiseptics forty hours, but the results were the same as for twenty-four hours.

The physical properties of gutta-percha roughly tested by inspection and behavior on manipulation seemed unchanged by any of the solutions employed.

CONCLUSIONS

1. The sample of gutta-percha tissue tested cannot be considered sterile.

2. Immersion of gutta-percha tissue in bichlorid of mercury 1 to 1000 or 1 to 2000 for twenty-four hours effectually sterilizes it and does not seem to otherwise affect the tissue.

I wish to thank my assistant, Dr. Emmet Keating, for helping me to prepare this paper.

100 State Street.

VACCINATION AND ITS RELATION TO ANIMAL EXPERIMENTATION *

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VACCINATION

In writing on the increase of our knowledge of vaccination and smallpox in its relation to animal experimentation and research, it will be desirable to preface the same by a discussion of the efficacy of vaccination as a prophylactic measure against smallpox.

In order to appreciate the importance of Jenner's discovery of vaccination, it is necessary to comprehend how extensive and fatal was smallpox in the prevaccination period.

It has been estimated that the population of London in 1685 was 530,000; in 1750 it was approximately 653,900; in 1801 it was determined by census to be 746,233.

The mortality from smallpox in London for an average of ten years, from 1681 to 1690, was over 3 per thousand of population (3,000 per 1,000,000); in the seventeenth and eighteenth centuries it frequently rose to 4.5 or more per thousand.

In the 54 years from 1647 to 1700, there was an average mortality from smallpox in London of 1,079 per year. The average yearly deaths by smallpox in the eighteenth century were 1,958. As it has been computed that about one in five died, it would appear that there were on an average over 5,000 cases of smallpox annually in the English capital in the seventeenth century, and almost 10,000 cases a year in the eighteenth century.

As will be readily comprehended, smallpox was a great scourge before the days of vaccination; but a small percentage of people escaped its ravages. It is asserted by contemporaneous writers that in the eighteenth century from 85 to 95 per cent. of the inhabitants of European countries suffered at one time or another from the smallpox.

Indeed, smallpox was as prevalent in the eighteenth century as measles is at the present time. Haygarth gives an account of an epidemic of smallpox in Chester, England, in 1744, at which time, out of a population of 14,713, 1,202 persons took the disease and 202 died. At the termination of the epidemic there were but 1,060 persons, or 7 per cent. of the population who had never had smallpox.

In 1722 smallpox devastated the small English town of Ware, whose population numbered 2,515 souls; of this number, there were only 914 persons susceptible to smallpox, inasmuch as 1,601 had already passed through an attack of the disease. During the epidemic referred to, 612 persons were attacked, leaving but 302 individuals in the entire town who had never had smallpox. Eighty-five per cent. of the population, therefore, were smallpox survivors.

With these official figures in mind, we may be better able to appreciate the general estimate of the extent of smallpox given by writers of the day. In 1802 Admiral Berkeley, in a speech before the House of Commons, said:

> It is proved that in this United Kingdom alone 45,000 persons die annually of the smallpox; but throughout the world what is it? Not a second is struck by the hand of Time but a victim is sacrificed upon the altar of that most horrible of all disorders, the smallpox.

King Frederick William III. of Prussia, in a dispatch, dated Oct. 31, 1803, stated that 40,000 people succumbed annually to smallpox in his kingdom.

The French physician, De la Condamine,[1] stated that "every tenth death was due to smallpox, and that one-fourth of mankind was either killed by it or crippled or disfigured for life."

Juncker, professor of medicine in Halle in 1796-98, gathered statistics[2] indicating that 65,220 persons died of smallpox in the German-speaking countries in 1796.

Sarcone[3] estimated the number of persons in Italy who suffered from smallpox as nine-tenths of the population. He states that in Rome in 1754 smallpox destroyed more than 6,000 lives.

Smallpox was introduced into the western hemisphere by the Spaniards about fifteen years after the discovery of America; in Mexico within a short period 3,500,000 persons are said to have died of the disease.[4]

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* This article is here considerably abbreviated. The complete article is one of a series of pamphlets issued by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Twelve of these pamphlets are now ready, taking up the relations to animal experimentation to ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, typhoid, dysentery, rabies, surgery, internal secretions, protozoan tropical diseases, etc.

1. De la Condamine: Mémoire sur l'inoculation de la petite vérole, 1754.
2. Kübler: Geschichte der Pocken und der Impfung, 1901, p. 99.
3. Sarcone: Childpox, etc., translated from the Italian into German by Lentin, Goettingen, 1782.
4. Chapman: Eruptive Fevers, etc., 1844, quoting Robertson's History of the Discovery of America.

It is alleged that in Mexico smallpox has exterminated whole tribes of Indians, sparing no one to tell the story of the annihilation.

Robertson refers to smallpox among the South American Indians as follows:[5]

> In consequence of this [various calamities], together with the introduction of the smallpox, a malady unknown in America, and extremely fatal to the natives, the number of the people both in New Spain and Peru was so much reduced that in a few years the accounts of their ancient population appeared almost incredible.

Catlin[6] states that, of 12,000,000 American Indians, 6,000,000 fell victims to smallpox.

Washington Irving's "Astoria" makes mention of terrible epidemics of smallpox among the Indians in which "almost entire tribes were destroyed."

Lloyd, who translated Prince Maximilian's "Travels in the Interior of North America," states in the preface, in reference to a smallpox epidemic among the Indians in 1837:

> The Big-Bellied Indians and the Ricarees, lately amounting to 4,000 souls, were reduced to less than the half. The Assiniboins, 9,000 in number . . . are, in the literal sense of the expression, nearly exterminated.[7]

According to records published by the government of Denmark, a devastating epidemic of smallpox appeared in Iceland in 1707 which destroyed 18,000 out of the 50,000 inhabitants; 36 per cent. of the total population perished. It is stated on good authority that in the Danish colony of Greenland, in 1734, 6,000 to 7,000 persons perished from smallpox, representing nearly two-thirds of the population. The disease was introduced by a Danish ship.

The natives of New England likewise suffered great losses by smallpox. Robertson writes:

> At the same time, about 1631, the smallpox, a distemper fatal to the people of the New World, swept such multitudes of the natives that some whole tribes disappeared.

In 1752 Boston had a severe epidemic of this dread disease. The population of Boston at that time was 15,684; of this number, 5,998 had previously had smallpox. During the epidemic 5,545 persons contracted the disease in the usual manner, and 2,124 took it by inoculation. Eighteen hundred and forty-three people escaped from the town to avoid the danger of infection.[8] There were, therefore, left in the city but 174 people who had never had smallpox. The population at the end of the epidemic practically consisted of persons who had survived an attack of this fear-inspiring malady.

CHANGE IN THE AGE INCIDENCE OF SMALLPOX

Smallpox was essentially a disease of children in former times; to such an extent was this true that the disease was called *Kindspocken* (childpox, or *Kindsblattern*). Owing to the pronounced contagiousness of the disease and the almost universal susceptibility to it, smallpox was largely contracted during child life, as measles is at the present time. But comparatively few adults contract measles at the present day because they are protected by a previous attack in infancy or childhood. The same conditions obtained with relation to smallpox in the days before vaccination. The adult population represented mostly the survivors from smallpox in childhood. It was estimated that only about 5 per cent. of persons were naturally insusceptible to the disease. Vaccination has totally changed the age period of smallpox. It is now excessively rare for a successfully vaccinated child under five years of age to die of the smallpox; it is even uncommon for a successfully vaccinated child under ten years of age to die of the disease, as was adequately proved in the testimony presented before the British Royal Commission on Vaccination.

DECLINE OF SMALLPOX AFTER THE INTRODUCTION OF VACCINATION

In most of the countries of western Europe there was noted about the beginning of the nineteenth century a sudden and pronounced decrease in the morbidity and mortality of smallpox. Inasmuch as this was coincident with the diffusion of the practice of vaccination, there is strong reason to regard Jenner's epoch-making discovery as the causative influence. The careful records of smallpox mortality which were kept in various countries, particularly in Sweden and England, make it possible to prove by documentary evidence that a marvelous decrease in the deaths from smallpox occurred within a short period after the introduction of vaccination. In the twenty-eight years before vaccination in Sweden there died each year from smallpox out of each 1,000,000 of population 2,050 persons; during the forty years following vaccination, out of each 1,000,000 of population the smallpox deaths annually averaged 158.

During the seven years preceding the introduction of vaccination in Prague, smallpox caused one-twelfth of the total number of deaths; during the twenty years following the introduction of vaccination, smallpox caused but one four-hundred-and-fifty-seventh of the total number of deaths.

ARGUMENT OF OPPONENTS OF VACCINATION

The opponents of vaccination—and they have been with us since the days of Jenner—admit the decline in smallpox referred to, but deny that the decrease was the result of vaccination. They declare it was due rather to the discontinuance of inoculation. This argument was carefully considered by the British Royal Commission on Vaccination.

Unfortunately for the contention of the opponents of vaccination, the increase in the prevalence of and mortality from smallpox during the eighteenth century was not coincident in point of time with the introduction and extent of employment of inoculation.

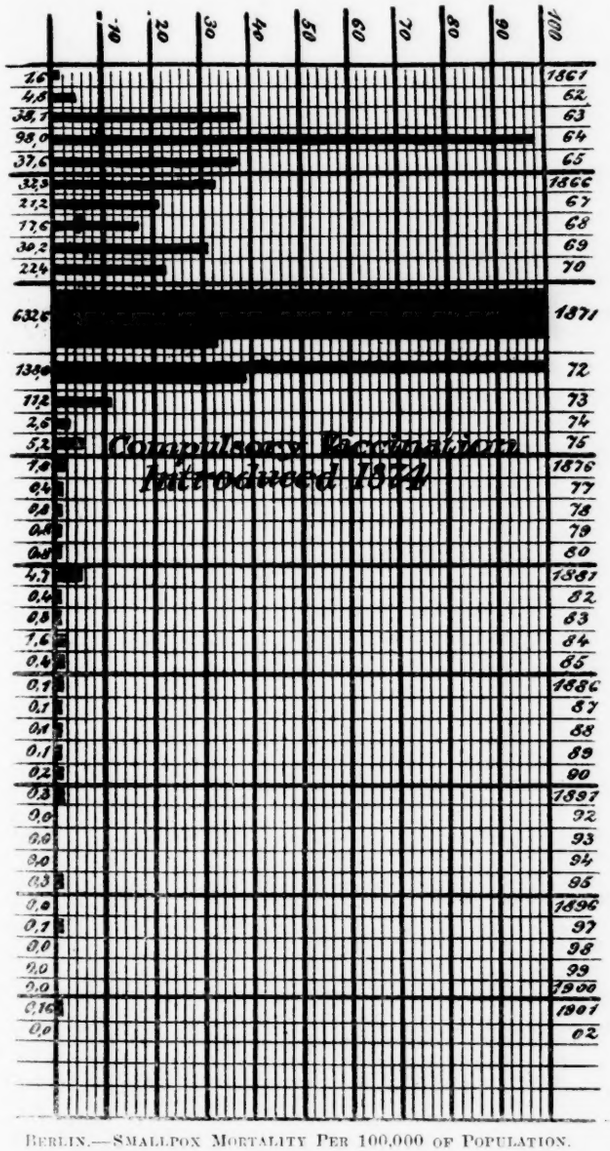
Inoculation was introduced into England in 1721, but comparatively few persons were inoculated before 1725. As is admitted by the two dissenting members of the Royal Commission on Vaccination, inoculation had no effect on the mortality from smallpox in the first quarter of the century (see page 354, Report of Dissentients, Sydenham Publication). Computation discloses the fact that from 1700 to 1725 the average yearly mortality from smallpox in London was 1,752. During the last quarter of the century, 1775 to 1800, when inoculation was much in vogue, the average yearly mortality was 1,817, an entirely insignificant increase. Indeed, relative to the population the smallpox deaths were actually less during the latter period.

It has been, furthermore, alleged by the opponents of vaccination that the decline in the prevalence of smallpox at or about the beginning of the nineteenth century was the result of improvement in sanitary conditions.

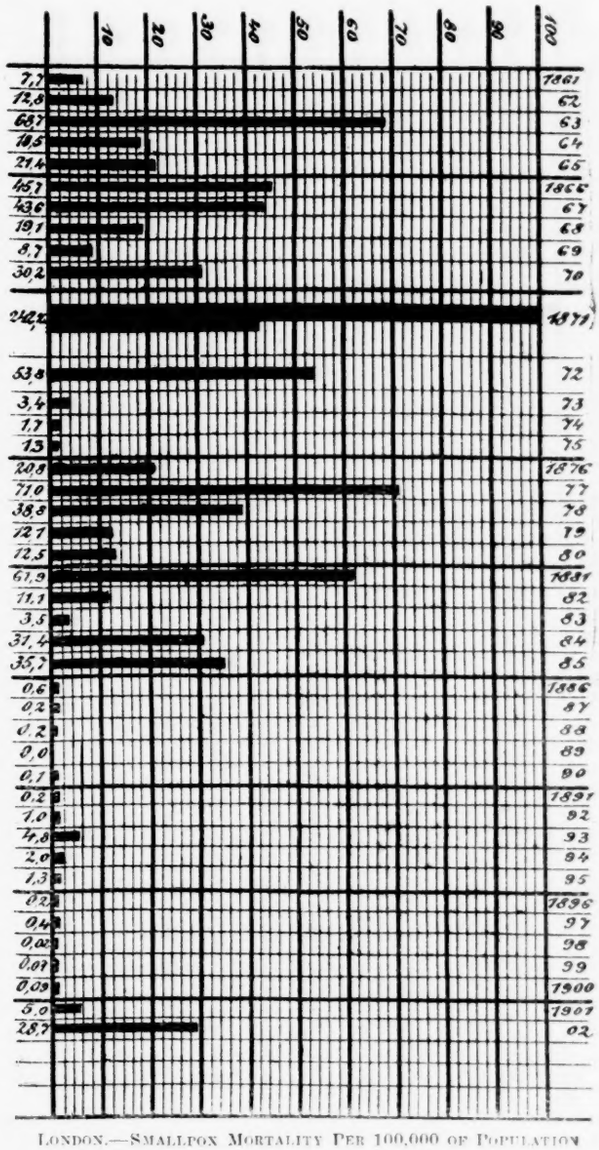
5. Robertson, William: History of the Discovery and Settlement of America, 1829, p. 348.
6. Catlin: Letters and Notes on the Manners, Customs and Conditions of the North American Indians, London, 1841.
7. Extracts from a paper prepared by Sir. John Simon in 1857, and presented by him before the Royal Commission on Vaccination in 1889, Appendix No. 1, p. 63.
8. Gentlemen's Magazine, 1753.

It may be conceded that such improvements as better drainage and sewerage, freer ventilation, purer water-supply, lessened crowding in dwellings, and the like, would, by improving the average individual health, tend to lessen the fatality of all infectious diseases, not excluding smallpox. But such influences are totally inadequate to explain the striking and progressive decline in the prevalence of and mortality from smallpox that followed the introduction of vaccination.

According to the Registrar-General's Report, during the same period in England that smallpox mortality has declined 72 per cent., the mortality from measles has fallen only 9 per cent. Furthermore, the death-rate from whooping-cough has declined but a little more than 1 per cent., and the diminution in the mortality of scarlet fever has become apparent only within comparatively recent years. Again the improvement in sanitation and mode of living has only caused a reduction of



BERLIN.—SMALLPOX MORTALITY PER 100,000 OF POPULATION.



LONDON.—SMALLPOX MORTALITY PER 100,000 OF POPULATION

CHARTS 1 AND 2 (BERLIN AND LONDON).—Comparison of mortality from smallpox per 100,000 of population. Since 1874, Germany has a well-enforced compulsory vaccination and revaccination law, while England has merely compulsory vaccination in infancy not generally enforced.
(This chart and the others in this article are part of a series published by the German Government in 1904.)

If sanitary improvements were responsible for the lessened mortality from smallpox, why did they not similarly influence the mortality from measles, scarlet fever, and whooping-cough, which are favored by the same conditions that aid the dissemination of smallpox? Smallpox and measles resemble each other in the sense that the spread of both diseases is not dependent on any special sanitary defect. Unlike typhoid fever and cholera, their occurrence is influenced by personal infection rather than by any definite vices of sanitation.

the general death-rate of the country (England) of 9 per cent.

ISOLATION PROPOSED AS A SUBSTITUTE FOR VACCINATION

The isolation of smallpox patients and general sanitary measures are urged by the antivaccinationists as substitutes for vaccination. The isolation of patients suffering from transmissible diseases of any kind is recognized by all sanitarians as a most important procedure. But to disregard vaccination and rely on isola-

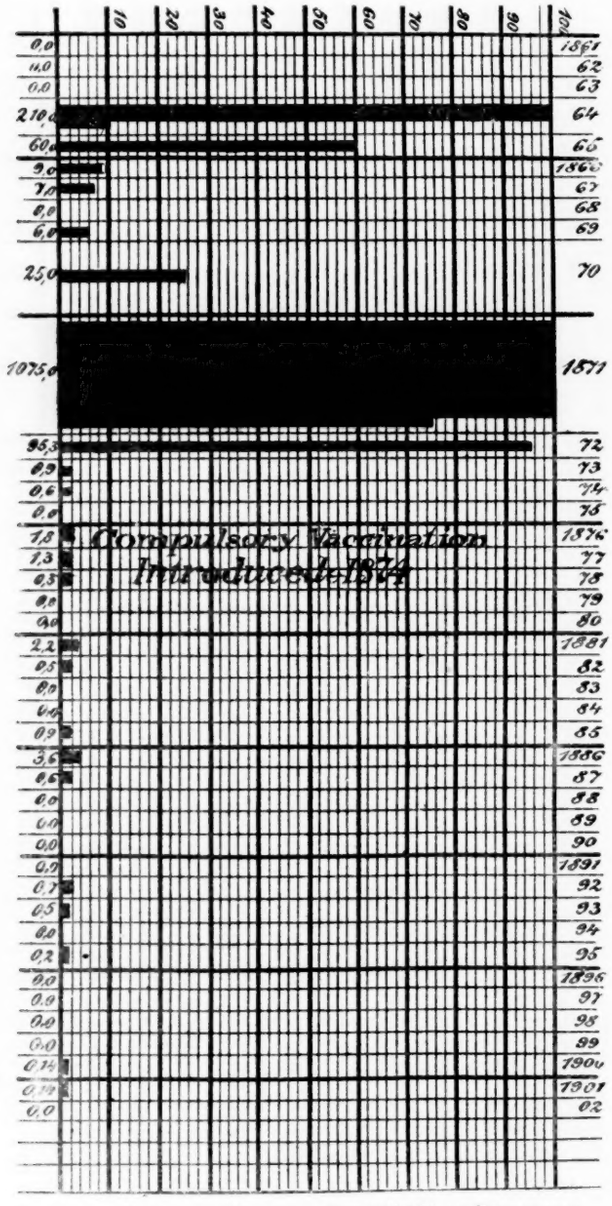
tion to combat an extensive epidemic of smallpox would be an act of folly which would not be long tolerated by any intelligent community.

Anyone with practical knowledge of smallpox knows that smallpox is often not recognized until many persons have been exposed to infection. Mild cases of smallpox commonly escape detection while the patient is abroad in the community. Moreover, it is impossible to diagnose smallpox before the eruption appears; during the several days preceding the outbreak of the eruption those persons in contact with the patient may receive the infection of the disease.

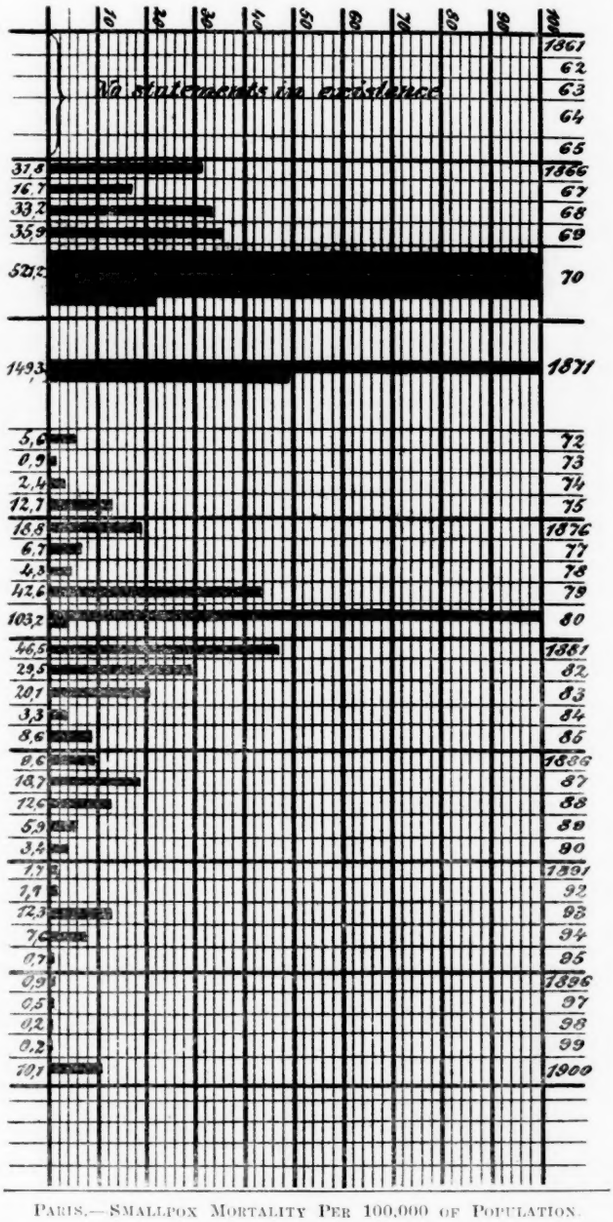
In regard to isolation, the Royal Commission on Vaccination says: "We can see nothing to warrant the conclusion that in this country vaccination might be safely abandoned and replaced by a system of isolation." The commission, of course, favored isolation as an auxiliary to vaccination.

SMALLPOX IN THE VACCINATED AND UNVACCINATED

It is not claimed at the present day that a single vaccination will invariably protect against smallpox for life. In the endeavor of the opponents of vaccination to prove that vaccination does not protect against smallpox, statistics are frequently cited to show that a large number of vaccinated persons contract the disease. This is an argument on which the antivaccinationists are prone to lay great stress. The argument, however, is specious and merely demonstrates that a single vaccination does not, as a rule, confer life-long protection against smallpox. If provision is not made for the renewal of protection by revaccination at a later period, the subjects are only in a measure secured against smallpox. England and other countries have had for many years a compulsory vaccination law, but it has had reference only to vaccination in infancy. It has resulted in an



HAMBURG.—SMALLPOX MORTALITY PER 100,000 OF POPULATION.



PARIS.—SMALLPOX MORTALITY PER 100,000 OF POPULATION.

CHARTS 3 AND 4 (HAMBURG AND PARIS)—Comparison of mortality from smallpox per 100,000 of population. In Hamburg no compulsory vaccination before 1874; since then compulsory vaccination and revaccination. In Paris no compulsory vaccination.

enormous saving of child life, but it has failed to provide for the protection of adults after the vaccinal immunity has died out.

Germany is the only one of the great countries of the world that has had experience for a sufficient period of time with a compulsory vaccination and revaccination law properly enforced, and Germany has been for thirty-five years free of epidemics of smallpox, although the contiguous countries have suffered from epidemics of this disease.

THE CLAIMS FOR VACCINATION

It is easy to comprehend why a single vaccination may not be relied on for perpetual protection against smallpox. Smallpox itself is, in rare instances, followed by another attack later in life. Now if one attack of smallpox does not invariably protect against a second, how could we expect vaccination, which in reality represents a benign, non-contagious and attenuated smallpox, to accomplish this desired end?

1. *A successful vaccination protects the subject against smallpox for a period of time not mathematically determinable for the individual, but which averages seven to ten years.*

2. *The protection may be renewed by a second vaccination when the vaccinal immunity is exhausted. The revaccination restores the protection which lapse of time has diminished or abrogated.*

3. *Persons successfully vaccinated on two occasions are usually immune against smallpox for life.* There are exceptional instances, however, of unusually susceptible individuals in whom a third or fourth vaccination is required. These exceptions are comparable with those rare cases in which a person is susceptible to a second or third attack of smallpox.

4. Persons vaccinated in infancy, who at some later period of life contract smallpox, have in the aggregate *less severe and less frequently fatal attacks than unvaccinated persons.* The degree of favorable modification of the smallpox is in inverse proportion to the period of time elapsing between vaccination and the attack of smallpox. The statistics as to the mortality of smallpox in the vaccinated and the unvaccinated are later set forth.

5. *The beneficent effects of vaccination are most pronounced* in those in whom the vaccine affection has run its *most typical and perfect course*, and who bear the best quality of vaccinal scars as attestation of the same. The mere production of a "sore arm" does not necessarily imply that the individual has been successfully vaccinated.

THE RESULTS OF VACCINATION IN GERMANY

Since the law of 1874 went into effect in Germany there have been no epidemics of smallpox in that country. The smallpox is frequently introduced by foreigners, particularly on the frontier, but the disease can find no foothold. In 1899 there occurred in the German empire, among 54,000,000 people, only 28 deaths from smallpox; these occurred in twenty-one different districts, the largest number in any one district being three. Not a death from smallpox occurred in a large town.

In 1897 there were but five deaths from smallpox in the entire German empire (54,000,000 population).

Furthermore, for a period of thirteen years, in a population comprising two-fifths of the total inhabitants of Germany, there were only five instances of death from smallpox in successfully revaccinated persons.

Germany has taught the world how to utilize Jenner's great discovery so as to exterminate epidemics of smallpox.

The German Vaccination Committee of 1884, referring to the influence of the compulsory vaccination law, said:

> The remarkable and persistent decline in Prussia since 1875 can be due only to the vaccination law of 1874, because all other conditions remain the same in the two other countries (i. e., Austria and Germany). The only difference is that in Prussia the revaccination of all school-children at the age of 12 years was made compulsory in 1874.

(To be continued)

DIPHTHERIA BACILLUS-CARRIERS IN THE PUBLIC SCHOOLS

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BOSTON

With the discovery of the bacillus of diphtheria by Klebs and Loeffler in 1883-4 came the hope that by the means of careful laboratory tests and strict quarantine regulations this disease might soon be banished from the civilized world. This hope has, as yet, however, to no great extent been realized. True, the disease has to a marked degree been freed from its terrors through the use of antitoxin, the discovery of which was first announced by Behring and Kitasato in 1890, but its incidence as a whole has not decreased; it still waxes and wanes outside of our control, still fills our hospital wards with little sufferers, and still presents one of the most serious of public health problems.

The reason for this condition of affairs is found in the study of two conditions; the first of which deals with the patient as to his relative immunity to the disease, and the second with the organism itself as to its degree of virulence.

A virulent organism plus a susceptible individual gives a type of disease readily recognizable. These are the cases to which the physicians are called and which very properly are surrounded with every safeguard to prevent infection of others.

We may also have a virulent organism plus an immune person; this combination, producing little or no distress in the person so infected, seems for that very reason of more danger to those with whom he comes in contact.

It is fair to suppose such a person might readily be the means of causing cases in widely separated parts of a city, considering the chances of infection in places of public congregation, street-car travel, etc.

The presence of virulent diphtheria bacilli in the throats and noses of such persons is one of the most probable reasons of our inability to stamp out the disease.

A non-virulent organism, whether carried by an immune or non-immune person, cannot be conceived to be the immediate cause of the disease diphtheria, although perhaps by long infection or through transmission from one person to another such an organism might acquire virulence and become a source of danger.

To conquer diphtheria, then, we must not only isolate those who have the disease, but—a much harder problem—those immune persons who are disseminating virulent

organisms, and perhaps even those with non-virulent organisms the virulence of which may become enhanced.

It has been proved[1] that about 1 per cent. of all well persons are carriers of typical diphtheria bacilli of the morphologic types ordinarily considered positive for diagnosis (i. e., Wesbrook's A, C and D).

It is, of course, impossible for us to consider isolating so large a number of people, even if our bacteriologic methods admitted the possibility of detecting them. It is probable that a large percentage of such carriers have non-virulent organisms, and our efforts should, if possible, be directed toward discovering carriers of virulent bacilli as more apt to be spreaders of the disease.

The persons most probable to be such carriers are such as have recently been in contact with those suffering from the disease, and it is a wise precaution to take cultures from such contacts as a safeguard to the public.

It has for many years been the policy of the Boston Board of Health, whenever there was an outbreak of diphtheria in a school or institution, to advise the taking of cultures from the noses and throats of all exposed persons, in order that not only those showing symptoms, but also those well persons (insusceptible or but slightly susceptible to the disease) who were bacillus-carriers might be removed from school, or in an institution isolated, if possible, from others.

This procedure has invariably been attended with marked success in clearing up such outbreaks. It has also been noticeable in several instances in institutions when the persons in charge have not taken such precautions, although urged to do so, that the eradication of diphtheria by the isolation of clinical cases only has been a well-nigh impossible task.

This experience is not confined to Boston alone; the value of such examinations is well known in public health circles, and Boston is but one among many places where they have been successfully applied. An entirely new procedure, however, was brought to the attention of the Boston Health Department when, acting on the suggestion of Dr. Richard C. Cabot, the school board suggested, under the advice of its committee of physicians, the taking of cultures at the beginning of the school year from all the pupils in the Brighton District, and the keeping from school of those found to be bacillus-carriers, as a possible means of eradicating the disease from the schools of the district.

Here it was suggested to take cultures not from persons exposed to the disease diphtheria, but from a large aggregation of supposedly normal individuals.

The estimated number of pupils in the Brighton District was about 4,500, and the laboratory promised to do the work in four days, together with the regular laboratory routine of about 100 daily examinations for diphtheria, tuberculosis, typhoid, and various miscellaneous tests. This, of course, meant long hours and close application, but for many reasons it seemed best to make these special examinations as quickly as possible. Since it had been well proved that not all carriers are obtained by a single round of cultures, it was also arranged to repeat the tests the following week.

The work had to be planned to the most minute details in order that it might be handled by the regular laboratory force. The Brighton District was divided into four sections, according to the location of the schools, and cultures were taken from the pupils in one section each day, the work being done by the regular school physicians of the district: Drs. Marion, Rowen, Rice, McKeen and McCauley, assisted by the following volunteers: Drs. Downing, Good, Kelly, Reed, Wood, Fitzgerald, Buckley, Dow, Myers, Riley, Lord and Connor.

The school board furnished, from the school nurses, assistants to do the necessary clerical work. Their work consisted of writing on a card for each culture the name and address of the pupil, the name of the school, doctor and teacher; also a number, the same number and name being written on a label on the culture tube itself.

At the laboratory, about half the necessary amount of media and swab sticks for the whole work were prepared in advance, and the day before cultures were to be taken in any section the proper number of swabs, serum tubes, throat sticks and cards were sent to the various schools.

The work in the laboratory was so arranged that, of the four doing diagnostic work, two worked continually at the preparation of smears and the other two at the microscopic examinations. The day's work started at 8 a. m. with the routine work of the laboratory, which merged as quickly as possible on to the special examinations.

It was understood that the cultures for the next day's work would reach us by 3 p. m. in order that they might be properly arranged and numbered before incubation. It was found necessary, however, for the first day or two to work evenings at this. Later, when we were more used to the details of this extra work, we were able to finish each day by 6 p. m. The smears were made up on long glass slides 9 by 2 inches, 25 smears to a slide, and all positive or suspicious smears as well as those containing D_2 forms were passed on by both of those making the microscopic examinations. Positive results were reported only on those cultures showing the A, C or D types of organisms (Wesbrook). These slides have been saved as of possible interest in research investigation.

TABLE 1.—DAILY RESULTS OF EXAMINATIONS

Date.	Positive.	Doubtful, in which reinoculation or reincubation showed positive or negative.	No culture or no growth.	Contaminated or broken tubes.	Absent.	Refused.	Negative.
9/13	15	8	4	4	0	1	1,262
9/14	12	5	5	2	0	1	1,114
9/15	13	4	4	0	0	2	1,012
9/16	8	1	1	0	0	0	689
9/20	12	3	3	0	5	1	1,257
9/21	5	4	3	0	0	6	1,100
9/22	8	1	3	0	0	4	1,020
9/23	6	0	1	0	5	1	664
	79	14	24	6	10	16	8,118

The cards were then marked and the reports made out. Cultures were examined by number only, being numbered consecutively from 1 to 600, 1,000, 1,200, or whatever the day's work might be, a duplicate number being on the serum tube and card. Without some such system it would have been impossible to handle the work. After the microscopic work was finished came the task of arranging the cultures for the next day by these consecutive numbers. The serum tubes were arranged in racks of 50 each, and for the most part this was readily done, taking two persons about three hours, because, as requested, the tubes and cards from any one room already had corresponding numbers; where, however, our request that this be done was disregarded we had the added labor of arranging all the tubes and cards alphabetically before we could number them.

1. Committee of the Mass. Assn. of Boards of Health: Report on Diphtheria Bacilli in Well Persons, Jour. Mass. Assn. Boards of Health, July, 1902, p. 74.

Sixteen refused to allow cultures to be taken, and there were without question many more absentees than shown by the table.

On the first day we examined 1,287 cultures; the second, 1,131; the third, 1,029; the fourth, 699—a total for the first round of 4,146; and of these, 55, or 1.33 per cent., were positive.

The children who gave positive cultures for the most part were removed from school.

Our second round the following week gave us 1,275 cultures the first day, 1,113 the second, 1,029 the third, and 670 the fourth—a total of 4,087, of which 38, or 0.93 per cent., were positive.

Since these two rounds, cultures taken from 298 pupils, absentees, new pupils, etc., have given us 9 positives, making a total out of 8,531 of 102, or 1.19 per cent. Three of these cases, positive on the second round, were duplicates of those on the first, leaving us just 99 cases, or 1.16 per cent.

The microscopic examination of so many smears in so short a time is very trying work, and the amount done in two weeks is no criterion by which to judge as to what could be regularly accomplished in routine procedure. It would be physically impossible to carry on so large a number of such exacting examinations for a long period, and it was accomplished this time only by long hours and intense application.

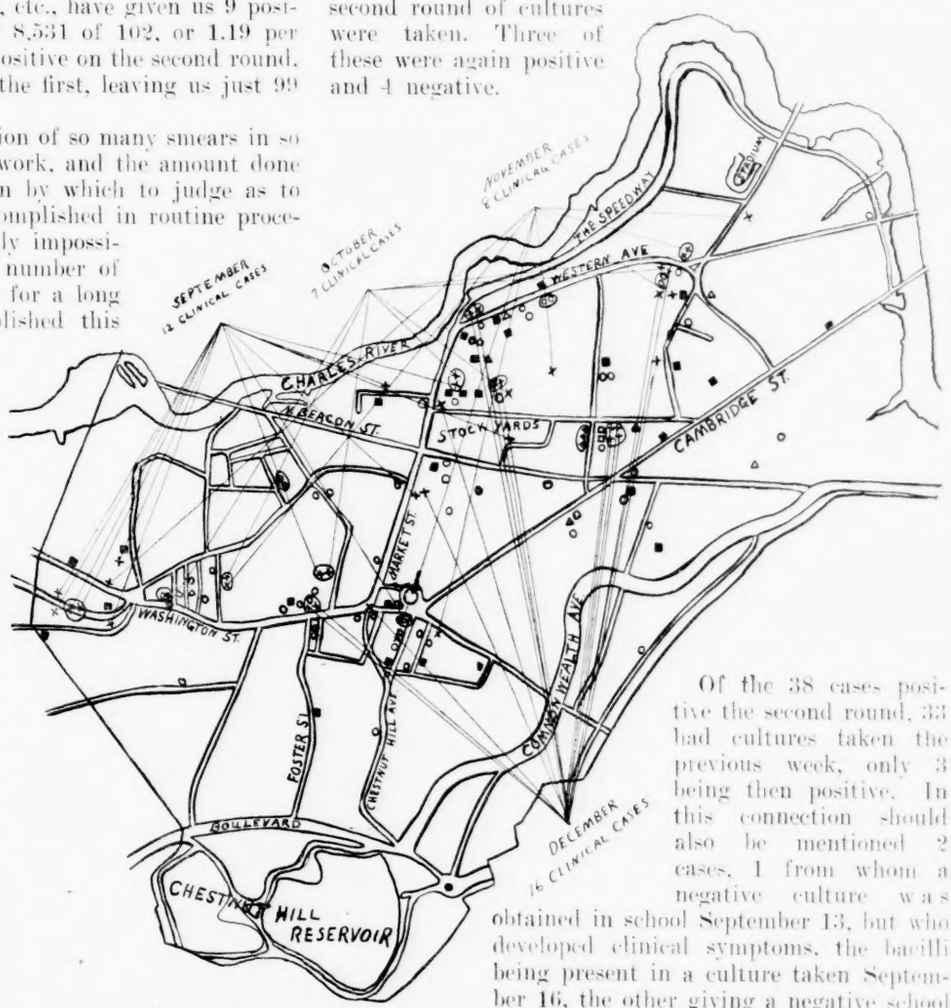
Three hundred and seventy-two secondary cultures have been received on the positive cases, of which 147 were positive.

The work began Monday, Sept. 13, 1909, and by the close of the second week we had already released on two negative cultures 29 of the children who had previously given positive cultures. The third week 32 more were freed, the fourth week 6, the fifth 5, the sixth 2, the seventh 3, the eighth 1, the ninth 5, the tenth 3, the eleventh 3. Of the remaining ten, 5 have had a single negative, two with persistently positive cultures have been allowed to re-enter school on negative virulent tests. One has left school. One was allowed to re-enter school in September through an error, after having received but a single negative. A culture taken two months later was positive, but, as the child had already been in school two months with no untoward results, she was allowed to continue. In one case the parents refused to allow the cultures to be taken and the child was admitted to school under threat of legal process.

It is probable that in many of these cases the children might have been released sooner if cultures had been taken more frequently. Fifty had but a single positive, 20 had but two, 8 had but three, 10 had four, 5 had five, 1 had seven, 1 eight, 1 ten, 1 eleven, 1 thirteen and 1 with twenty-six never had a negative. This last case is reported by the school physicians as a case of chronic ozena.

It was our intention to isolate the organisms from many of the cultures and test their virulence, but this was, of course, impossible during the progress of the examinations. Streak-outs were made, however, from all positives and the tubes saved, but the organisms were found most difficult to isolate. We succeeded in obtaining but eight pure cultures, and virulence tests on all these were almost or entirely negative.

Of the 55 children giving positive cultures during the first week's work, 7 were present in school when the second round of cultures were taken. Three of these were again positive and 4 negative.



Map of Brighton district, showing location of diphtheria bacillus-carriers and clinical cases; each small circle indicates a carrier, first week, September 13-17; each solid black square, a carrier, second week, September 20-23; each triangle, a carrier, later among absentees, etc.; each cross, a clinical case; each large circle indicates cases in same house.

Of the 38 cases positive the second round, 33 had cultures taken the previous week, only 3 being then positive. In this connection should also be mentioned 2 cases, 1 from whom a negative culture was obtained in school September 13, but who developed clinical symptoms, the bacilli being present in a culture taken September 16, the other giving a negative school culture September 16 and having symptoms and a positive culture the 20th.

It seems proper to infer from these findings that as a rule these carrier cases are but transient in character. The results seem too consistent to be accounted for by possible errors in culture taking or from overgrowth by other organisms.

We face, then, not a problem of detecting and isolating certain definite bacillus-carriers and making an end of the matter; we have rather to consider a constantly changing condition with but few fairly permanent carriers and a larger number of transients constantly shifting from one group of persons to another. Nor is there reason to believe otherwise concerning the adult population who, while not so susceptible to the

disease, are just as liable to be carriers of the organisms. Even were it possible to control diphtheria by constant cultures from a whole population with isolation of carriers, how useless to attempt such control by taking cultures from school children only and allowing the other five-sixths of the population to go free!

The conditions are far different from those obtaining in an institution where all are under strict surveillance and where some such scheme might logically and properly be carried out.

These carrier cases in Brighton, as shown by the map, are widely scattered throughout the district, with but occasional grouping in neighborhoods, and sometimes two cases in one family or house.

In our examination of cultures from day to day, the percentage of positives in any given number remained about the same, indicating that the carriers were evenly distributed, and that in any given section of the district they approximated 1 per cent.

The Board of Health has no legal authority to keep these well children from school, and the procedure adopted in this case was to send a letter to the parents or guardians, as follows:

BOSTON, Sept. 17, 1909.

To the Parent or Guardian of .....:

The Board of Health hereby notifies you that the child above named has been found to be a carrier of diphtheria bacilli, and is on this account a source of danger to others. This child should not return to school or mingle with others until two negative cultures have been obtained by the school physician, who will call on you.

Medical advice for the removal of these bacilli from the child's nose and throat and the early return of the child to school should be secured at once.

By direction of the Board of Health. SECRETARY.

While the children were for the most part kept from school in accordance with this request, it was impossible to prevent their association with the school children outside of school hours, the Board of Health having no authority to quarantine these carriers. It is unfortunate in this connection that among the results of the work we must include the loss sustained by these children in being deprived of so much of the school year and the abandonment of school by one.

These carrier cases have been closely watched, and not one had been ill, nor has any case of diphtheria been traced to them.

The clinical cases of diphtheria still persist in about the usual number and without any apparent connection with the carriers found, as shown in the following table:

TABLE 2.—CASES OF DIPHTHERIA IN WARD 25 BY MONTHS, 1904-1909

	1904	1905	1906	1907	1908	1909
January	19	3	6	11	18	7
February	4	3	8	6	20	3
March	1	1	7	2	6	4
April	13	8	6	15	5	5
May	1	4	9	3	29	2
June	2	1	5	2	16	7
July	4	0	14	6	6	4
August	8	9	15	0	5	6
September	2	2	6	0	16	12
October	4	7	23	10	14	7
November	2	9	28	2	25	8
December	6	5	18	11	10	16
Totals	66	52	145	65	170	81

It should, of course, be taken into account that there have been but few clinical cases of diphtheria in Brighton during the entire year.

We draw the following conclusions:

1. At least 1 per cent. of all healthy school children are carriers of morphologically typical diphtheria bacilli (Wesbrook's A, C and D types).

2. Such bacilli are communicable from one person to another and the condition is usually a transient one.

3. The organisms are ordinarily of little or no virulence.

4. While it is possible that by passing through a susceptible individual their virulence might be raised to cause the disease, this is not a frequent occurrence.

5. The disease diphtheria is kept alive in a community rather by virulent organisms in immune persons than by these non-virulent bacilli.

6. Where virulent diphtheria bacilli are present, as shown by outbreaks of the disease, cultural tests of all contacts and isolation of those showing positive cultures is a duty owed to the community.

7. Where the disease does not exist, isolation of carriers of probable non-virulent bacilli is of no proved benefit, and is a costly and laborious procedure entailing much unnecessary hardship on innocent and probably harmless parties.

8. The attempt to control diphtheria in a city by a round of cultures from all school children at the beginning of the school year does not seem encouraging from this series of tests.

9. The proposition to stamp diphtheria out of a city by cultural tests of all the inhabitants and isolation of all carriers is impossible from any practical standpoint.

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SPECIFIC TREATMENT IN PULMONARY TUBERCULOSIS *

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Keeping in mind the fact that most of you are engaged in the active practice of our profession and that you, therefore, come in constant contact with tuberculous patients, who do not so much care how and why they acquired their disease or fail to improve and recover, as they want to be treated and cured of it, we have believed it proper to select for our subject a practical and important side of the therapeutics of tuberculosis, a part of phthisiotherapy which has been for almost twenty years the subject of much controversy and research, and which forms the most recent and by no means the least important one of our resources in treating tuberculosis. We refer to specific medication, and understand by that term the treatment of tuberculosis by means derived from the specific virus responsible for the disease or from its products.

Most of you will remember the excitement which was caused in November, 1890, through the announcement by Koch[1] of his tuberculin which he had cause to believe a truly etiologic remedy for tuberculosis, and you will no less recall the acute disappointment which followed promptly on the short period of what a French author has called the tuberculin delirium, when failures and ill effects under the methods of application then prevailing, at first isolated, soon became frequent enough. By these the remedy was discredited and the hopes from it were doomed to disappointment.

However great the failure, however keen the disappointment at the non-success of tuberculin was at that time, we now know that the remedy itself was not responsible as much as was the method of its application and the practically indiscriminate selection of cases; and

* Read by invitation before the Chicago Medical Society, Nov. 3, 1909.

1. Koch, Robert: Deutsch. med. Wchnschr., 1890, xvi, 1029.

neither tuberculin nor its originator, Koch, deserved the virulent attacks which were hurled against them from many quarters. It would be a tempting task to trace the history of the discovery and development of specific means for the treatment of tuberculosis, but lack of time forces us to proceed with our subject.

We believed from the beginning that the failures of tuberculin and their causes could be overcome in time, and we recall with satisfaction, in the light of recent successes, that we never lost faith in the possibilities opened up by Koch's discovery, and our conviction never was shaken that the good effects which were observed would eventually be proved to be due to immunization rather than to a necrosing action of the remedy.

Tuberculin and later other products of the tubercle bacillus have been employed in the treatment of our patients in the Winyah Sanitarium ever since December, 1890, and the good results therefrom, as compared with previous ones, have improved as better preparations became available in the course of time.

It was not easy to proceed along this path and to persist in the clinical application of a discredited method, in the face of the almost universal condemnation to which it had been subjected to such a degree that but few that continued to use it dared to say a word in its favor, and we stood practically alone in this country for a number of years in open advocacy and support of the treatment.

Fortunately our persistent efforts met such emphatic clinical success that we were stimulated to renew and continue them, and we have never wavered in our firm belief that in this, as in other questions, truth must eventually prevail. In the course of the last ten and still more of the last five years the prejudice against specific remedies in the treatment of tuberculosis has gradually become less intense, and all opposition from experimental clinicians has now not only ceased, but has even been transformed into their active support.

Prior to 1901 when Koch[2] showed an increase in the agglutinating power of the serum of patients treated with emulsion of tubercle bacilli, the proof of the value of specific treatment was entirely clinical. At this time Koch reported on 74 patients who had been treated with his emulsion and whose serum prior to treatment had shown an agglutinating power in degrees which never exceeded a ratio of 1 to 10. After treatment an increase was observed, so that in 42 of the cases the agglutinating power was from 1:25 to 1:50; in 19 cases from 1:75 to 1:100, and in 9 cases it exceeded this amount. Koch inferred that the formation and increase of specific agglutinins was combined with that of other protective substances from the fact that the patients were correspondingly improved. We confirmed the findings of Koch the following year and obtained even much higher degrees by treatment with the watery extract of tubercle bacilli which had been used in our institution since 1897.

The further development of studies of immunity in tuberculosis has led to the demonstration of other specific immune bodies; that of specific amboceptor has become possible by the adaptation of Wassermann's method by Bordet and Gengou,[3] that of the opsonic index by the method of Sir Almroth E. Wright,[4] and their methods have afforded us valuable means of further confirming the results of our clinical observations.

2. Koch, Robert: Deutsch. med. Wchnschr., 1901, xxvii, 829.
3. Bordet and Gengou: Ann. de l'Inst. Pasteur, 1901, No. 5; Cf. Gengou: Berl. klin. Wchnschr., 1908, xliii, 1531, and elsewhere.
4. Wright, Sir A. E.: Lancet, London, 1901, i, 609, and elsewhere. See Note 9 for full literature.

As is well known, all immune substances are formed to a greater or less degree in infectious diseases. In a favorable course of the acute forms they appear more promptly and abundantly, which explains the equally prompt recovery. In chronic infections like tuberculosis the spontaneous formation of antibodies is far less intense in degree, which may be explained by the biologic and morphologic differences of the tubercle bacillus and by its pathogenic action, on the one hand, and, on the other, by the fact that the pathologic process induced is at first local in character, the foci being then small, becoming caseous and more or less encapsulated; further, by the non-vascularity of the tubercle and by the early obstruction of vascular channels in its periphery, all of which factors prevent in part the passing of toxins into the circulation.

Thus specific agglutinins are absent, or present in only small amounts in the beginning of the disease; they are always present and usually in greater amounts when the disease has become more evident, but still not far enough advanced to have seriously impaired the general nutrition. Such a relation has been shown by various observers and became quite apparent in our own studies. That the unaided development of such antibodies rarely reaches a degree sufficient for an actual and lasting recovery is attested by the more or less rapid progress of the disease and by the frequency of relapses after improvement or apparent cure.

In 567 cases of pulmonary tuberculosis treated in the Winyah Sanitarium we have records, on admission and discharge, of the agglutinating power of the patients' serum. The agglutinating power on admission is shown in Table 1.

The agglutinating power of these on discharge is shown in Table 2.

We have not found any considerable number of cases reported in literature which were treated without specific remedies and in which the demonstration of antibodies in the serum has been recorded on admission, during or on the completion of the treatment. In our report[5] from the Winyah Sanitarium for 1907 we cited the results obtained by Ravenel and Landis[6] in the prognostically favorable material of the White Haven Sanatorium in 18 early-stage cases in which specific methods had not been employed; after treatment for from four months to one year they obtained no other values than we do on the admission of our cases, i. e., agglutination in dilutions not exceeding 1:30. They nevertheless incline to consider a low power of agglutination as of unfavorable prognostic significance.[7]

5. Von Ruck, Karl, and von Ruck, Silvio: A Clinical Study of Two Hundred and Ninety-three Cases of Pulmonary Tuberculosis, Asheville, N. C., 1907.
6. Ravenel and Landis: Med. News, 1905, lxxxvii, 1070; Tr. Nat. Assn. for the Study of Tuberc., 1905, p. 140.
7. The general conclusion of these and other authors that a low agglutination was unfavorable prognostically was insofar modified last year by Landis (Jour. Med. Research, New Series, 1908, xiii, 19) that in some cases, in spite of a persistently low rate of agglutination, good clinical results have been obtained. He assumes that in such patients with a low degree of immunity their particular tubercle bacilli are of low virulence. Aside from our reference to Ravenel and Landis we have, in the same place, referred to evidence to be found in literature in support of our position that an increase in agglutinating power of the serum proceeds *pari passu* with the improvement of the patient's condition and is therefore prognostically favorable. We wish, however, to state that the adverse conclusions recently expressed by Kinghorn and Twichell (Am. Jour. Med. Sc., 1909, cxxxvii, 404) do not appear to us to be well founded in the light of the immense amount of evidence in agreement with our point of view. As an apparently paradoxical result of successful treatment it may occur that the power of agglutination is slight or absent on discharge. Rumpf (Schroeder and Blumenfeld: Handbuch der Therapie der chronischen Lungenschwindsucht, Leipsic, 1904, p. 504) takes this to mean that in such cases the formation of antibodies is no longer needed, since none or but few toxins are absorbed, the disease being either arrested or cured.

TABLE 1.—AGGLUTINATION ON ADMISSION IN 567 CASES

	Cases.
Negative in	30
Positive in dilutions of 1:5 in	89
1:10	144
1:15	49
1:20	105
1:25	115
1:30	18
1:40	5
1:50	12

Concerning the nature of the agglutinins we can so far only say that they are albuminous substances, and we must refer to R. Paltauf in Kolle and Wassermann's "Handbuch"[8] for a review of the opinions expressed by different authors. The antagonistic action of agglutinins on bacteria is called "bacteriotropic" by Wright,[9] meaning that the agglutinins tend to enter into a chemical relation with the specific bacteria, whereby their viability is impaired.

Some years ago we attempted to demonstrate practically the action of agglutinating substances on living virulent tubercle bacilli by using serum from patients with varying agglutinating power for culturing tubercle bacilli. One cubic centimeter of human serum was used for each test, the blood being obtained from the fingertips and received in small sterilized test-tubes. After the serum had separated and had remained sterile in the incubator for twenty-four hours, a small flake of a serum culture of virulent human tubercle bacilli was floated on the surface and the tube replaced in the incubator.

Of the serums employed, those from normal persons tested for comparison gave no agglutination of tubercle bacilli; those from untreated patients agglutinated in dilutions of 1:10, 1:20 and 1:25. Visible growth developed on the inoculated serums which had agglutinated not at all or in dilutions of 1:10 on the tenth day; on serum agglutinating at 1:20 on the fourteenth, and on serum agglutinating at 1:25 on the fifteenth day.

With serums of treated patients which agglutinated at 1:100, 1:200, 1:300 and 1:400, a normal serum, without agglutinating power was compared likewise. On this, growth developed on the twelfth day. On the 1:200 serum, growth occurred on the thirty-fourth day; none had as yet occurred on the others. On that day all serums were inoculated intraperitoneally into guinea-pigs. All developed tuberculosis, and the difference in the duration of life was as follows: guinea-pigs inoculated with normal serum, with growth, lived forty-eight and fifty days; guinea-pigs inoculated with serum agglutinating at 1:10, 1:20 and 1:25 lived sixty, forty-two and seventy days; guinea-pigs inoculated with serum agglutinating at 1:100, 1:200, 1:300 and 1:400 lived sixty-four, seventy-five, ninety and one hundred and eight days, respectively. All pigs showed progressive tuberculosis.

In this experiment the tubercle bacilli were evidently not destroyed, but their growth appeared to be delayed or inhibited. If this was due to the presence of agglutinins or other antibodies, the results unmistakably indicate a favorable and desirable action, *in vitro* as *in vivo*, which, in the latter case, is, of course, conditional on the persistence of the agglutinating power in the patient's serum for a long period of time.

Whether this condition is actually fulfilled or not in the living blood, we have tried to determine by examination of persons who had been discharged after specific treatment for varying periods of time. Our results in 41 cases examined within the last year, the patients having been discharged from two to ten years previously were as shown in Table 3.

TABLE 3.—AGGLUTINATION IN 41 CASES AFTER DISCHARGE

		Agglutination		
Time Since Discharge.	No. Cases.	Less Than 1:100	Over 1:100 Below 1:200	Over 1:200
Two to three years	15	1	10	4
Three to five years	15	4	11	.
Five to ten years	11	7	4	.

Specific amboceptor was also determined in 7 of these cases and was present in dilutions of 1:60 in 1 case discharged five years ago; 1:40 in 2 cases discharged three and ten years ago, respectively; 1:20 in 1 case; 1:10 in 1 case; 1:4 in 1 case, discharged three years ago. A similar result was noted in the opsonic index. The blood alkalinity was determined in 12 of the cases, being normal in 3, and above normal, i. e., from 1.1 to 1.3 in the other 9.

The active immunization by means of tubercle bacilli or their proteins is thus shown to promote the formation of agglutinins and of other immune bodies in various degrees, and in the permanency of our results shown in 602 cases tabulated in our report for 1907 we believe to be justified in assuming a relation of the immunity induced or increased by specific treatment, there being no reason to doubt that an examination of the serums of others discharged and permanently recovered would show similar results to those here reported.

Soon after the first publication of the respective methods for demonstration of specific amboceptor and the opsonic index they were applied by us for the purpose of confirming the belief that with the increase of agglutinins these would likewise show an increase. Owing to the large amount of time required, the number of cases studied was limited to individuals and small series; the result, however, left no doubt in our mind as to the correctness of our assumption. More recently, with increased facilities for this work, we have studied the subject in a larger number of cases, in many of which

TABLE 2.—AGGLUTINATION ON DISCHARGE IN 567 CASES *

	Grown Worse.		—Stationary—		—Improved—		Much Improved.		Apparently Cured.		
Agglutination.	No.	%	No.	%	No.	%	No.	%	No.	%	Total.
Lost or diminished	23	100	..	.....	..	.....	..	.....	..	.....	23
Over 1:50; not exceeding 1:100	13	9.77	15	11.27	50	37.59	40	30.07	15	11.27	133
Over 1:100; not exceeding 1:200	..	....	9	4.66	25	12.95	79	40.93	80	41.45	193
Over 1:200; not exceeding 1:300	..	....	1	0.57	2	1.15	23	13.30	147	84.90	173
Over 1:300	..	.....	..	.....	..	.....	3	6.66	42	93.33	45

* The agglutinating power has been diminished or lost entirely in 23 cases. All of the patients grew worse or died. In 133 cases showing agglutinations in dilutions up to 1:100, 13 patients or 9.77 per cent. had grown worse or died; the condition of 15, or 11.27 per cent. was stationary; that of 50, or 37.59 per cent. had improved; that of 40, or 30.07 per cent. had been much improved or the disease arrested, while 15, or 11.27 per cent. were apparently cured. In 193 cases showing agglutination in dilutions over 1:100 and not exceeding 1:200, not patients had grown worse; 9, or 4.66 per cent. were stationary; 25, or 12.95 per cent. were improved; 79, or 40.93 per cent. were much improved or their disease was arrested; 80, or 41.45 per cent. were discharged apparently cured. In 173 cases showing agglutination in dilutions of over 1:200 and not exceeding 1:300, none had grown worse; 1, or 0.57 per cent. was stationary; 2, or 1.15 per cent. were improved; 23, or 13.3 per cent. were much improved or their disease was arrested; 147, or 84 per cent. were discharged apparently cured. In 45 cases showing agglutination in dilutions of over 1:300, 3 patients, or 6.66 per cent. were much improved or their disease was arrested; and 42, of 93.33 per cent. were discharged apparently cured.

8. Paltauf, R.: In Kolle and Wassermann, Handbuch der pathogenischen Mikroorganismen Jena, 1904, iv, 1, 645.

9. Wright, Sir A. E.: Studies on Immunisation, London, 1909, p. 36. Here is full literature on opsonic studies.

we made daily observations, and we are now able to report on 71 cases, in which the amboceptor and opsonic index were determined on admission, during treatment and on discharge. We have likewise studied the serums of 30 adults free from tuberculosis and in good health otherwise, and, for other purposes, the serums of 20 newborn children, 13 of non-tuberculous parentage and 7 in whom one of the parents had a history of tuberculosis. The results of these studies are given in Table 4. They show that specific immune bodies were never found in the serums of normal adults and of babies whose parents were free from tuberculous taint; that specific amboceptor is, as a rule, present in tuberculous subjects, and that under treatment it was increased on an average by 150 per cent., that at the same time the opsonic index increased, showing a gain of an average of 27 per cent.[10]

TABLE 4.—COMPARATIVE STUDIES OF IMMUNE SUBSTANCES IN SERUMS

I. NORMAL SERUM IN 43 CASES

30 adults agglut. 0... amboceptor 0 opsonic index, average 0.98
13 new-born agglut. 0 amboceptor 0 opsonic index, average 0.9

II. SERUMS FROM NEW-BORN BABIES WITH HISTORY OF PARENTAL TUBERCULOSIS IN 12 CASES

A. IMMUNE SUBSTANCES IN THE SERUMS OF FIVE NEW-BORN BABIES WHOSE MOTHERS (4 CASES), OR FATHER (1 CASE) HAD BEEN TREATED WITH SPECIFIC REMEDIES

	Baby.	Mother's Serum. Agglutination.	Baby's Serum. Agglutination.	Amboceptor.
1.	H.	1:250	1:100	Not determined
2.	T.	1:200	1:80	1:50 (?)
3.	B.	1:250	1:225	Trace
4.	St.	1:200	1:100	1:2
5.	G.	(Not tuberc.)	1:5	1:10
	Father	1:225	....	....

B. IMMUNE SUBSTANCES IN THE SERUMS OF SEVEN NEW-BORN BABIES WHOSE MOTHERS WERE SUSPECT OR TUBERCULOUS, BUT HAD NOT BEEN TREATED WITH SPECIFIC REMEDIES

	Baby.	Agglutination.	Amboceptor.	Opsonic Index.	Precipitins.
1.	B.	...	1:20	1.4	1:500
2.	M.	1:4	....	0.85	1:400
3.	P.	1:5	1:10	1.2	1:400
4.	T.	1:2	....	0.94	1:200
5.	W.	...	....	0.89	1:400
6.	Wr.	1:10	1:4	0.8	1:400
7.	McC.*	1:2	....	1.1	1:400

* Specimen did not reach us until a week after it had been taken.

III. SERUMS FROM TUBERCULOUS PATIENTS, 71 CASES

A. AMBOCEPTOR

Admission Cases.		Discharge Cases.
15	Amboceptor absent	5
24	Amboceptor 1:1 to 1:5	15
28	Amboceptor 1:10 to 1:20	29
4	Amboceptor 1:25 and over	22
Average 1:8		Average 1:20
		Average increase 150 per cent.

B. OPSONIC INDEX

Admission Cases.		Discharge Cases.
26	Opsonic Index 06-09	8
28	Opsonic Index 1. (normal)	3
15	Opsonic Index 1.1 to 1.2	19
1	Opsonic Index 1.3 to 1.4	28
1	Opsonic Index 1.5 or over	13
Average 0.99		Average 1:26
		Average increase 27 per cent.

While the methods for the estimation of agglutinins and precipitins are comparatively simple, those for amboceptor and opsonins are more complicated and require a considerable amount of preliminary study and practice as well as much time and laboratory equipment, so that they can hardly become available in general practice.

The amboceptor reading and the opsonic index vary greatly from time to time, even in favorably progressing cases, while the agglutinins show a much more uniform behavior. When the various readings are charted in such cases, the agglutinins show an almost uninterrupted upward direction, while the amboceptor and opsonic index show rises and falls which correspond to Wright's positive and negative phases. Wright explains the irregularities in the opsonic curves in untreated cases by the occurrence of autointoxication on exertion, excitement, and from other causes, and the explanation seems plausible. However that may be, we can confirm Wright in that the curve of the opsonic index can be depressed by the injection of bacillary products, and if the dose is too large or is given before the end of a negative phase the depression will be greater than it would be otherwise. The same is true for amboceptor, and, in fact, the two curves run practically parallel.

The curve for the specific precipitins varies likewise, but in an inverse manner to that of amboceptor and opsonic index. The precipitins increase as a whole under immunization, but in contrast to amboceptor and the opsonic index they rise sharply after an injection, and they also vary in untreated cases. To obtain the highest indices for amboceptor and the opsonic curves the readings must be made when the precipitins are lowest.

Complications and other conditions which lower the agglutinins likewise depress the amboceptor and opsonic curves; on their removal or disappearance the latter are found to reach their former height more rapidly than do the agglutinins.

From our observations we believe that we are justified in concluding that when we determine the amboceptor we likewise determine the opsonic index, and that in this sense the terms "amboceptor" and "opsonins" mean the same thing. Inasmuch as normal serum shows no specific amboceptor for tubercle bacilli, but reactivates white blood cells so that phagocytosis takes place we cannot see that the phenomenon is directly specific; but rather conclude that by the union of the specific amboceptor and complement, and their action on the specific bacilli, the latter undergo bacteriolytic changes under which phagocytosis can take place more readily. Our time is too short for us to enter into the subject more fully, and, while we are in accord with Wright that the bacilli are prepared by substances in the serum in a manner that they are more readily taken up by phagocyting cells, we prefer the theory that this "preparing" occurs in the manner stated above through the specific immune substances generated under active immunization and the normally present complement, and that the then observed increased phagocytosis is one of the results. Simultaneous observation of both the amboceptor and opsonic index are not necessary, but it is our purpose to continue them with the view of determining which of the two methods is most reliable and most practicable.

We now desire to call attention to the condition of blood alkalinity on admission and discharge in 367 cases of which we have complete records. Comparing these, the rate and uniformity of increase is remarkable, reaching points far exceeding the normal. Their relation to the results obtained is similar to that shown for agglutinins, amboceptor and opsonins, and it appears as though prognostic deductions can be made from its degree on admission. In its determination we have followed Dare's[11] spectroscopic method, the normal 1.0 of which, according to him, is equal to 266 mg. sodium hydroxid for 100 c.c. of blood.† In our studies we

10. It should be mentioned that in a number of these cases it so happened that the blood specimens obtained on discharge showed a negative or declining phase, with a high precipitin curve, and in such instances the records for amboceptor and opsonic index are less than would have been found, had the blood specimens been taken at the acme of a positive phase.

11. Dare, A.: Bull. Johns Hopkins Hosp., 1903, xiv, 175.

† Following Löwy's method of trituration, we find Dare's "normal 1.0" to correspond to 320 mg.

have also examined the alkalinity of 30 persons in good health and free from tuberculosis, and they showed an average of 1.03 with a minimum of 0.99 and a maximum of 1.1 per cent. In our previously cited report we briefly considered this subject and reported on 100 cases. The 367 cases studied since then, in which the alkalinity was determined both on admission, during treatment, and on discharge, give further support to our opinion that the increase shown is important. Without referring to more of the voluminous literature, we may recall that Roser[12] already in 1881 called attention to the importance of the high content in sodium chlorid of the blood serum for bactericidal immunity, and that London[13] showed that a diminution in the blood alkalinity, by the continued administration of hydrochloric acid causes a diminution of the bactericidal action of blood serum. von Behring[14] saw the cause for the immunity of rats to anthrax in the high alkalinity of their blood serum, and found that the serum of rats treated during life with substances which diminish the alkalinity permits a luxuriant growth of anthrax bacilli. Pane,[15] also Zagari and Innocente,[16] confirmed the relation of the blood alkalinity to the natural resistance of animals. Studies concerning the relation of immunity and blood alkalinity were then made by von Fodor,[17] who found that an artificial increase of the alkalinity increased the resistance of the organism; he was supported by Calabrese,[18] Pochl[19] and Loewitt;[20] but Chor,[21] also von Behring,[22] denied the correctness of his conclusions. The latter,[23] as well as Gamaleia,[24] attributed the bactericidal power of serum to its carbon dioxid content, and they were supported by Christmas.[25] Further experiments were published and are described by Friedberger,[26] who concludes that if the alkali content of the blood stands in any relation to its bactericidal power the influence of the reaction can be only secondary and can play only a subordinate rôle in artificial or acquired specific immunity against bacteria. Friedberger adds that the attempt to account for the destruction of germs by chemical conditions of the body fluids has long been given up.

However this may be, we nevertheless believe that the alkalinity of the blood is an important factor in resistance, it being a well-known fact that especially in infectious diseases it increases during convalescence and diminishes when the disease takes an adverse course. Our results in the 100 cases tabulated in 1907 and in the 367 cases examined since then show that an increase in the blood alkalinity occurs with successful immunization, and that, like the increase in agglutinins, the degree of alkalinity stands in a certain relation to favorable results obtained. The curve of alkalinity we find to rise practically in a parallel ratio with that of the agglutinins. We do not, of course, claim that this is in any way specific either in regard to resistance or to immunity; it is perhaps rather a phenomenon of general resistance, as has been pointed out by Kolle.[27]

TABLE 5.—BLOOD ALKALINITY ON ADMISSION AND DISCHARGE, IN 367 CASES OF PULMONARY TUBERCULOSIS

Alkalinity.	Apparently Cured		Much Improved		Improved		Stationary		Worse	
	Admission.	Discharge.	Admission.	Discharge.	Admission.	Discharge.	Admission.	Discharge.	Admission.	Discharge.
.7 to .8	4	..	5	..	5	1	1	1	11	12
.85 to .95	66	1	40	7	31	6	15	11	6	10
1.	85	9	35	22	20	16	3	5	5	..
1.05 to 1.10	11	28	5	28	3	22	..	1	..	..
1.15 to 1.20	6	65	3	27	3	6	..	1	..	..
1.25 to 1.30	2	62	2	5	..	11	..	..	..	..
1.40 to 1.50 and over	..	9	..	1	..	..	..	..	..	..
	174	174	90	90	62	62	19	19	22	22
Average	.97	1.20	.95	1.10	.94	1.08	.91	.95	.86	.80
Gain	..	+ .23	..	+ .15	..	+ .14	..	+ .04	..	— .06

TABLE 6.—BLOOD ALKALINITY IN ITS RELATION TO CLINICAL RESULTS IN 367 CASES OF PULMONARY TUBERCULOSIS

Alkalinity.	Cases.	Apparently Cured.		Much Improved.		Improved		Stationary		Worse	
		No.	%	No.	%	No.	%	No.	%	No.	%
.7 to .8	14	..	.....	..	....	1	7.14	1	7.14	12	85.7
.85 to .95	35	1	2.85	7	20.0	6	17.1	11	31.40	10	28.5
1.	52	9	17.3	22	42.3	16	30.7	5	9.6	..	....
1.05 to 1.10	79	28	35.4	28	35.4	22	27.8	1	1.27	..	....
1.15 to 1.20	99	65	65.6	27	27.1	6	6.05	1	1.01	..	....
1.25 to 1.30	78	62	79.4	5	64.0	11	14.1	..	.....	..	....
1.40 and over	10	9	90.0	1	10.0	..	.....	..	.....	..	....

In Tables 5 and 6 we give the alkalinity as found on admission and discharge in 367 cases, and its increase under specific treatment is shown to vary according to the results obtained.

In these 367 cases the results were obtained under the influence of watery extract of tubercle bacilli. If we compare their immunity and resistance as shown by agglutinins and by alkalinity, as we have found them in 13 cases treated elsewhere with old tuberculin, in 5 cases treated with *Bouillon filtré* (Denys), and in 2 cases treated with Koch's *Bacillen emulsion*, we find that in these twenty patients the blood alkalinity and agglutinins after discharge were much less, the highest degree being shown in the two cases treated with Koch's emulsion.

On discharge the alkalinity was below normal in 7 cases, average agglutinins 1:48.

12. Roser, K.: Beiträge zur Biologie niederer Organismen, Marburg, 1881; Cf. von Lingelsheim: Ztschr. f. Hyg., 1901, xxxvii, 131.
13. London: Compt. rend. Acad. d. sc., cxxii, 1278; Cf. Hahn; in Kolle und Wassermann Handbuch der pathogenen Mikroorganismen, iv, 1, 266.
14. Behring, E.: Centralbl. f. klin. Med., 1888, ix, 681; Zts. hr. f. Hyg., etc., 1889, vi, 117.
15. Pane: Riv. clin. e. terap., 1892, No. 12; Cf. Friedberger, note 26.
16. Zagari and Innocente: Giorn. internaz. d. sc. med., 1 2, p. 801; Cf. Friedberger, note 26.
17. Von Fodor: Centralbl. f. Bakteriol., 1891, vii, 7; 1894, xvi, 783; 1895, xvii, 225.
18. Calabrese: Giorn. internaz. d. sc. med., 1895, Nos. 5 and 22; Cf. Friedberger, note 26.
19. Pochl, A.: Deutsch. med. Wchnschr., 1895, xxi, 88.
20. Loewitt, M.: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1897, xxii, 172.
21. Chor: Ann. de l'Inst. Pasteur, 1891, p. 337; Cf. Friedberger, note 26.
22. Behring, E.: Ztschr. f. Hyg., 1890, ix, 395.
23. Behring, E.: Ztschr. f. Hyg., 1889, vi, 107.
24. Gamaleia: Ann. de l'Inst. Pasteur, 1888, ii, 517; Cf. Friedberger, note 26.
25. Christmas: Ann. de l'Inst. Pasteur, 1891, v, 487; Cf. Friedberger, l. c.
26. Friedberger, E.: In Kolle and Wassermann, Handbuch der pathogenen Mikroorganismen, iv, 1, 491, 560.
27. Kolle, William: In Kolle and Wassermann, Handbuch der pathogenen Mikroorganismen, iv, 1, 408, 411.

On discharge the alkalinity was normal in 6 cases, average agglutinins 1:56.

On discharge the alkalinity was above normal in 7 cases, being 1.07 on an average, and reaching 1.2 in only one instance, average agglutinins 1:108.

Finally we refer to our examinations of serums in 23 cases having apparently recovered without specific treatment in the sense that there were no marked symptoms, and who had either been discharged elsewhere as apparently recovered or had lost their symptoms under favorable climatic conditions without special professional care.

In these, the blood alkalinity and the agglutinins had not increased over what we have ordinarily found on admission. It was below normal in 4 cases, and the agglutinins gave an average of 1:10. The blood alkalinity was normal in 6 cases, average agglutinins 1:15.

The blood alkalinity was above normal in 13 cases, ranging from 1.05 to 1.15, with an average of 1.07, average agglutinins 1:108.

That tuberculosis actually existed in these patients was otherwise evident, and the conjunctival tuberculin test which was applied in 9 instances gave positive results in all of them.

Our studies concerning the causes underlying the striking increase in the blood alkalinity in patients treated with specific remedies and especially with remedies derived from the body substance of the bacilli have not yet given any definite results. The correspondence with the increase of agglutinins is, however, suggested. J. H. Kellog,[28] among other authors, brings it into relation to diet and uses his findings as an argument against forced feeding with an excess of proteins, claiming that the blood, overcharged with protein-waste, causes a deficient oxidation and diminishes the alkalinity and consequently the vital resistance. We do not believe that diet is a deciding factor in our cases, because it was the same in practically all of them. It was, as a rule, mixed; nearly all patients gained in weight, and we are not aware that there is anything special in our dietary to account for the increase in alkalinity. Outside patients who did not board in the institution showed the same relative increase in alkalinity under specific treatment. While in normal serums the variation of the blood alkalinity appears to stand in relation to the color index, we do not find this to be the rule in tuberculosis. It is true that in some anemic patients the alkalinity and also the blood count and the hemoglobin content are low, there are others, and they are more numerous, in whom this is not the case. For instance, we show the alkalinity normal with a low red cell count of 3,200,000, and hemoglobin 0.60 per cent., while in another case it is likewise normal, with a blood-count of 4,800,000 and hemoglobin 0.90 per cent.; or, again, we obtain an increase in alkalinity of 25 points, from 0.85 to 1.1, when the blood-count remained constant at 4,800,000 and the hemoglobin at 0.82 per cent.

The idea has suggested itself to us that the increase in blood alkalinity under specific treatment depends on the increase of alkaline albumins which would best account for the regularity and constance of the increase.† A. Loewy[29] concluded from his studies that the alkalies of the blood are only partly mineral and are in part derived from organic sources, i. e., albumins. von Fodor and Rigler[30] believe that the alkalinity is derived from organic substances and that their formation is stimulated by the injection of specific remedies through a vital reaction in the body or by the leucocytes. They, however, leave the question unanswered whether or not these alkaline substances are identical with those which protect the organism against infection. That the mechanism of immunization is chemical and not physical in nature was pointed out in 1890 by Koch[31] at the Tenth International Medical Congress in Berlin and has since been confirmed by the work of Ehrlich.[32]

Returning now to the practical side of specific treatment in tuberculosis, we believe that the evidence from literature as well as that afforded by our own investigations is sufficient to establish our position that after active immunization the protective substances as well as the blood alkalinity are increased, and that *pari passu* with this increase there occurs a corresponding improvement in the condition of the patient and in the tuberculous process, and that this evidence is sufficient to relieve our assertion from the possible reproach of a post hoc conclusion, the clinical improvement having been shown to stand in relation to the immunization.

If you admit our position as correct, you must also admit that the treatment of pulmonary tuberculosis by general hygienic-dietetic methods, however valuable it undoubtedly and admittedly is, is not capable of more than improving the general condition, thereby increasing the general resistance. It is not able to induce specific resistance, though it aids its development and maintenance in so far as it induces a better state of cell nutrition. To secure this, careful attention to hygienic-dietetic methods is thus of the greatest importance.

Concerning the choice of preparations for immunization, our aim should be to induce active bactericidal, rather than antitoxic or passive immunity, it being essential that the organism elaborate its own protective substances and maintain this function for the longest period of time possible. For this purpose the bacillus itself or its soluble products are necessary, and the preparations available may be divided into two classes:

1. The tuberculins are products derived from the liquor culture media on which tubercle bacilli have been grown, but into which the bacillary bodies do not enter. The tuberculins act chiefly as stimulants on the periphery of tubercle and often cause local inflammations which are dangerous. They may, indeed, produce a degree of immunity by the presence of specific proteins derived from the bodies of tubercle bacilli, especially if the preparation be made from very old cultures, in which more or less of the bodies of the tubercle bacilli have become disintegrated. The immunity produced by the tuberculins is, therefore, comparatively slight at best, and is often not sufficient to arrest the growth and multiplication of the tubercle bacilli.

2. Preparations derived from the tubercle bacilli bodies themselves, represented by Koch's *Bacillen emulsion* and by the watery extract of tubercle bacilli.

In our choice between the emulsions of Koch and others and the watery extract of tubercle bacilli our preference for the latter has been governed by the compared clinical results, which, to say the least, are equally favorable under the use of the watery extract. Furthermore, emulsions have the disadvantage that the immunizing substances must first be liberated and extracted

28. Kellog, J. H.: Med. Rec., 1909, lxxv, 253.

† The alkalinity of the blood-serum shows likewise an increase. Our triturations show for a series of healthy persons an equivalent of 400 mg. sodium hydroxid; for non-treated tuberculous patients from 210 to 400 mg. and for cases treated with watery extract of tubercle bacilli from 460 to 570 mg.

29. Loewy, A.: Centralbl f. d. med. Wissensch., 1894, xxxii, 785.

30. Von Fodor and Rigler: Centralbl. f. Bakteriol., 1897, xxi, 186.

31. Koch, Robert: Verhandl. d. X. Internat. Med. Cong., Berlin, August, 1890, i, 35.

32. Ehrlich, P.: Ges. Abhandl. z. Immunitätsforsch., Berlin, 1904, pp. 515, 537.

by the organism after their introduction, that the effects after repeated doses are liable to become cumulative, and that an exact dosage is difficult or impossible. The tubercle bacilli contained in such emulsions, moreover, contain other substances than those supposed to be required for immunization (fats, waxes) which have been shown to be detrimental in the experimental studies of others.

The question of the selection of cases suitable for immunization we have considered[33] fully in the Report of the Winyah Sanitarium for 1909. Here we can only say that the state of existing nutrition is all important, and that in cases in which this is seriously impaired or progressively declining there is little or no response in the formation of immune substances. Thus we would have to exclude exhausted and cachectic patients and those whose general condition is on a decline on account of higher degrees of fever and of complications, and we would have to defer specific treatment until the decline in nutrition has been checked and an improvement has become manifest. In cases with advanced lesions we must further consider their prognostic import in the light that whatever the degree of immunity present or prospective may be it cannot remove caseous foci, prevent or stop softening and disintegration of necrotic tissue, or remove complications due to other causes, such as inflammation and suppuration induced by other pathogenic bacteria. What we may reasonably expect is that the new formation of tubercle will be checked, that more recent tubercles will undergo resolution and disappear, that older foci not yet softened will become more readily encapsulated, and that in favorable cases the results in these respects will become permanent.

For the results which we have obtained we must likewise refer to our clinical reports. A tabulation which appeared in the one for 1909 (p. 11) shows as follows:

Of 1,503 cases treated with the watery extract of tubercle bacilli there were on discharge

Apparently recovered	834 or 55.5 per cent.
Improved	508 or 33.8 per cent.
Stationary or progressive	161 or 10.7 per cent.

In the report for 1907 we likewise reported the experiences with the watery extract of tubercle bacilli of over 100 independent observers, most of them in general practice, and without the advantage of climatic influences or of being specially trained in the treatment of tuberculosis, and the summary in their results in 2,183 cases gives us the following percentages:

Apparently recovered	1098 or 50.3 per cent.
Improved	639 or 29.4 per cent.
Stationary or progressive	446 or 20.3 per cent.

It may be of interest to remember that most of the clinical results which we have reported since 1891, and the cases treated by others, have been obtained without laboratory control. The success shown was, therefore, entirely due to conservative methods in the matter of dosage and frequency of administration and in proper attention to the individual needs in each case.

While, then, the general practitioner can also successfully immunize his consumptive patients without determining the agglutinating power, amboceptor, or the opsonic index of his patients' blood serums, we nevertheless suggest a simple method by which he can control and regulate the doses, namely, the determination of the precipitin curve. Our charts show that the highest point of this curve corresponds to the lowest point of the amboceptor and opsonic index, and when the latter is reached a further dose may properly be given. The method for determining the precipitins is not only very simple, but it has the advantage that degrees vary in very much wider limits than do the opsonins, going up to 1:2000 or more, so that small variations can be determined which could hardly be appreciated in the opsonic index.[34]

We are at the end of this communication, and we hope that we have proved the advantage, nay, the necessity, of active immunization in addition to general methods in the treatment of tuberculosis, if we desire to give our patients the fullest benefit of treatment and the best chances for recovery. With this addition, even the general practitioner will see no longer a reason for the pessimistic opinions expressed by some tuberculosis specialists concerning the results attainable, even under what they consider the most favorable conditions. Investigation will probably show that they treat their patients entirely by general methods in which, as we have pointed out, relapses are almost unavoidable.

We ourselves, on the contrary, see rather cause for enthusiasm and a stimulus for renewed efforts than for lamenting the fate that made us specialists in the disease.

33. Von Ruck, Karl, and von Ruck, Silvio: A Clinical Study of Three Hundred and Thirty-seven Cases of Pulmonary Tuberculosis, Asheville, N. C., 1909.

34. To those who are not familiar with the method we give the following guide: Prepare a 1:100 per cent. solution of Koch's tuberculin or use No. 1 solution (white label) of the watery extract of tubercle bacilli, placing 1 c.c. in small test-tubes. Add not exceeding an equal amount of the different dilutions of serum, using distilled water 1 to 100, 1 to 200, 1 to 400, etc., and place the tubes in the incubator for a few hours, or allow to stand in a warm room for from twelve to twenty-four hours. The readings then can be observed by the formation of the precipitates.

THE DYSPEPTIC TYPE OF CHRONIC APPENDICITIS

(PYLORIC SPASM) WITH DIFFERENTIAL DIAGNOSIS

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GENERAL CONSIDERATIONS

Cases of chronic appendicitis in which the stomach symptoms predominate have been a stumbling block in the past to both clinician and surgeon, and to-day the symptomatology of the condition is far from being definitely settled. In the early days many of these cases were operated on by surgeons in general for ulcer of the stomach, and while no lesion was found in the stomach, a needless gastroenterostomy was performed for the so-called medical ulcer, which operation brought the patient trouble rather than relief. In our earlier experience we frequently were at fault. These patients were made worse by the first operation, and had bile regurgitation added to their former distress necessitating a second operation for their relief.

It has long been noted that chronic dyspepsias have been cured in patients who for years have been treated for chronic stomach disorders, in whom an acute appendicitis necessitated operation. This attack at the time was thought to have been a separate trouble. Indeed the profession has been slow in grasping the point that the stomach picture was due to chronic appendicitis.

In the last few years the French have written extensively on dyspeptic appendicitis, and in this country the

earlier writings gave chronic dyspepsia and intestinal intoxications as etiological factors of appendicitis. Murphy, Ochsner, Richardson, Deaver, Eggleston and many others in their later writings have recognized the part played by the appendix and gall bladder in causing chronic digestive disturbances, and have made many valuable contributions to the subject.

In our effort to work out a symptomatology of this condition we have reviewed carefully the histories of some two hundred patients, and compared them with the histories of ulcer of the stomach and duodenum and gall bladder disease. Of these two hundred patients one hundred and fifteen have been operated on a year or longer, and each patient has been written to and the exact condition of health ascertained.

DIFFERENTIAL DIAGNOSIS

Chronic indigestion is most typically exemplified in chronic peptic ulcer, gall-bladder pathology, appendicitis and cancer of the stomach, but we should hold clearly in mind the indigestion of pancreatitis, tuberculosis (especially pulmonary), tuberculous lesions of the ileocecal region, Bright's disease and pernicious anemia. This latter class of sufferers often present themselves solely because of digestive disturbances, and not infrequently it calls for painstaking care to reach a correct diagnosis.

I. ULCER

Chronic ulcer of the stomach and duodenum has a definite, clear-cut and regular symptomatology, and we shall discuss this as the purest type of "indigestion." First, let us note that the histories of those who come to operation cover years of complaint, and that for much of the time the periods of attack and periods of freedom from symptoms alternate. Early in the history of this complaint the appetite remains good, nutrition does not fail, and food brings immediate relief from all symptoms; the pain, distress, gas, sour eructations, nausea or vomiting returning one to four hours after meals. The heartier the meal the more marked and prolonged the relief. During the period of attack this precise relief of symptoms by food or drink and regular return one to four hours later is peculiarly characteristic, and this prevails until complications have arisen that seriously interfere with the gastric function. Another stage of the trouble may be considered to begin after many periods of attack. The peculiar type remains unchanged. The attacks are more severe and prolonged, appetite may fail or food is not taken because of pain, distress, gas, vomiting, sour eructations and burning stomach. Food and drink relieve, but the time of relief is shortened and the later pain increased. Vomiting may replace eructations, and gives relief, as does irrigation of the stomach. Nutrition decreases not so often because of lessened appetite or of prescribed diet as because of fear of later distressing symptoms. Relief for a time comes from food or drinks, vomiting, irrigation and alkalies, but the distress returns again when the acid, acrid condition of the stomach contents returns. It is not the chronicity or the periodicity that is peculiar, nor the degree or location of the pain, nor the vomiting, gas, sour eructations or sour burning stomach; these are common to all types of chronic dyspeptic trouble—gall-stones, appendicitis, cancer, etc.: the characteristic point is the time the pain appears, with its accompanying symptoms of vomiting, gas and sour eructations; its regularity after meals or after other means that quiet, and the equally ready control of symptoms by food, vomiting, irrigation, etc. This characteristic regularity day after day, meal after meal during the period of attack is hardly equaled in any other lesion or functional disorder. Later, when complications have appeared, the symptoms change. Food may not ease, but rather increase the distress, which is often more or less continuous. There are no periods of real relief, vomiting is perhaps less frequent, is more copious and gives only partial relief; appetite and nutrition fail.

II. GALL-BLADDER DISEASES

Gall-bladder disease has its peculiar type of digestive disturbances. We distinguish four stages based on the degree of severity of symptoms developed in the history.

1. Those patients with mild disturbance, usually gastric, and often lightly considered by the patients and even more lightly by the physicians. These are light attacks of distress, gas, upward pressure, coming often soon after food, or at irregular times, often of sudden onset and short duration, eased by belching, slight vomiting or regurgitation, or slipping away almost unnoticed and without treatment, though various measures may get credit for their relief. These sudden, irregular, mild dyspeptic attacks are quite as typical of gall-bladder disturbance as are the severe, typical attacks which, as a rule, supplant the mild.

2. There is another class of patients with more or less prolonged, dull (mild or severe) pain in the epigastric area, right hypochondrium or whole liver area. This pain may be increased by food, exertion or motion; deep respiration gives pain, and when located posteriorly the trouble may be called pleurisy. These patients pass through prolonged, steady attacks, their distress may alternate with ease, and comparatively good or excellent health may be enjoyed for a time. During an attack dyspeptic symptoms are prone to be present, and but for the irregularity, as compared with ulcer, one might oftenest consider gastric lesions.

3. In the third class is to be found the great number in whom the correct diagnosis is made, and in this class surgery finds its greatest activity. Here we have the so-called typical gall-stone attack—sudden, severe epigastric pain, radiating to the right costal arch (at times to left), through to the back or scapular region, spasm of the diaphragm, upward pressure, gas, nausea, vomiting, and after a longer or shorter terrific attack comes sudden cessation and, until complications occur, almost immediate return to health. Sudden onset, and sudden cessation without apparent cause or without treatment, are quite peculiar to gall-stone disease when no complications are present. These attacks come irregularly, night or day, and oftenest bear no relation to food, though often called acute indigestion, gastralgia, neuralgic stomach and other equally incorrect names.

4. The fourth condition is that of chronic gall-bladder trouble—adhesions, duct obstruction, perforation, contractions and duct infections—with pancreatitis. Often in this class chronic gastric disturbances predominate, and the picture is so closely related to chronic ulcer with complications that a differential diagnosis cannot be clearly made if only present symptoms are considered. A correct diagnosis depends on the development of the early history. However, the chief end is obtained when the necessity for surgery is realized, and the patient is sent for relief with a diagnosis of a surgical abdominal trouble.

III. CHRONIC APPENDICITIS

In reviewing our histories of chronic appendicitis in which stomach symptoms predominate, we find that there is a neurotic element running through many of the cases. Whether this is an inherited taint or due to the chronic disability we do not know. Sex plays no important part. The average age is less than in either chronic ulcer or gall-bladder sufferers. In the former it is 45, in the latter 40, and in chronic appendicitis 34 years.

CHARACTER OF ATTACKS

We note in general that the symptoms are irregular when compared with chronic peptic ulcer; prolonged when compared with gall-bladder trouble; the exceptions being, ulcer with complications, gall stones with duct obstruction and infection. If the attacks of chronic appendicitis be short they lack the regularity of ulcer, are usually more severe, unless perforative ulcer be considered. When studied with gall-stones there may be less distinction, but the characteristic radiation of the pain of gall-stones is wanting, and the clear-cut gall-stone attack is poorly simulated. The whole syndrome is blamed to food intake directly more often than in ulcer, and still more frequently than in gall-bladder disturbances.

Exertion is a factor often laid at the door of appendiceal attacks; rarely is this true in peptic ulcers and gall-stones. Then, too, absolute disability, so that the bed is sought, is common during an appendiceal course, and is rare in ulcers, except bad hemorrhages, perforations and other late complications, when nutrition suffers greatly. In gall-stones the bed is seldom taken to except at the crisis, or in common-duct obstruction, infection or severe pancreatitis, and even then as a rule we find our patients about. We note the chronicity and the periodicity in all, but chronic appendicitis lacks the regular relief to all symptoms on taking food, and the regular return of pain in one to four hours. In chronic appendicitis the food instead of bringing ease produces early if not immediate discomfort; one meal giving one effect, the next meal quite another. Rarely do meals give ease in appendicitis, except in some hyperacid conditions, and in this relief there is no regularity meal by meal or day by day, as in ulcer. When we turn to gall-stones, there are the short, clear-cut attacks with sudden onset and sudden relief, mild or severe, with the severer cases giving typical radiation, and, when relief comes, perfect health instead of a few or many days of general disability.

PAIN

Pain in chronic appendicitis is the great prevailing symptom, and is often manifested by a queer distress. It does not seem so often to reach the severity it does in gall-stones, but is more prolonged; neither does it so often reach the constancy and intensity during the whole attack as it does in decided cases of chronic ulcer. However, it is not the kind, the degree, the location or the radiation, nor is the time of the pain so great a factor as it is in ulcer. The time of the pain is irregular. During an attack pain oftenest appears soon after, or is caused directly by, food, save in those rather rare instances of highly acid condition, or when, from fear of food light diet has heightened the appetite, at which time food gives short respite. Often there is present rather continuous pain or rather a continuous distress which is epigastric, or so indefinitely abdominal that the patient describes it as epigastric, when really it is abdominal. There is not the clear-cut repetition and definite pain of ulcer, nor the clear-cut definite gall-bladder attacks; neither is there so often the definite location of the pain. Nausea, distress, flatulence and a feeling of distention covers the sensations of far more patients with chronic appendicitis than of chronic peptic ulcer or gall-bladder disease. The degree and the kind of pain are not specific, but have a bearing. Severe pain points to acute appendicitis, which we are not considering here.

LOCATION

Location of pain has a bearing, though we may have only epigastric pain complained of in any or all three conditions. In gastric ulcer the pain is purely epigastric, except in perforation, great dilatation and prolapse conditions. In gall-stones it is epigastric, with radiation to right and to back, or a sore and tender feeling in any part of the liver area. In chronic appendicitis it may be epigastric only, but often indefinitely epigastric and abdominal, in low gall-bladder or high appendix area. Then the radiation is usually *nil* in ulcer, to right costal arch and back in gall-bladder, indefinitely or plainly abdominal in chronic appendicitis.

With attacks of dyspepsia with epigastric pain, with radiation to or about the umbilicus or lower abdomen, hold first and clearly to appendiceal disturbance, keeping in mind peptic ulcer and gall-bladder trouble with possible complications. A tender area is often found at McBurney's point when not at all complained of subjectively.

CONTROL OF SYMPTOMS

When we come to control of symptoms, we find a clear-cut difference. Food, drink, alkalies and irrigation bring more or less complete and immediate relief in uncomplicated peptic ulcer, the symptoms returning regularly within a few hours at most.

In chronic appendicitis anything taken into the stomach usually disturbs, and only rarely brings relief, and if some ease is felt it is not regular and complete. Vomiting may bring relief in chronic appendicitis, but rarely so completely as in ulcer, and vomiting is much less constant in chronic appendicitis, and hence is less a factor.

In the usual run of uncomplicated gall-stone diseases food does not give much evidence of being a direct cause of the painful attacks.

EARLY HISTORY

Before leaving the subject of pain we would call attention to attacks in childhood or early youth of diarrhea or "stomach ache," more commonly termed "belly ache," as these attacks are usually abdominal. The attacks, the histories of which are often clearly recited, are typical appendicitis, and are the logical forerunners of the later dyspeptic attack. Then, too, recall the history of years of indefinite dyspeptic symptoms, followed by a typical appendiceal attack, with operation and the cure of the dyspepsia. Let us not forget that in any abdominal attack with prominent gastric symptoms, where a history of pain about the umbilicus or lower abdomen is definite, we should hold first and clearly to appendiceal trouble, not forgetting gall-stones, ulcer, pelvic tumors (ectopic pregnancy) and perhaps general constitutional disease—Bright's disease, tuberculosis, etc.

VOMITING

Vomiting in ulcer is usually regular (except in complications), one to four hours after meals when all symptoms are at their height. It is sour, acrid, bitter-burning liquid, perhaps with some food. Ease follows the vomiting, and the vomiting is allayed by food taken, as are all other distressing symptoms. In gall-bladder cases the vomiting is only at the crisis, and is a bitter, acrid mucus, unless by chance the spasm follows closely the ingestion of food. In chronic appendicitis vomiting is not so prominent a symptom as in ulcer and does afford a marked degree of relief. It is irregular during the attack, but when it does appear it closely follows

food, and consists of food rather than sour liquid, though both may be present. Nausea rather than vomiting is a characteristic.

GAS

In chronic appendicitis discomfort from gas makes up more the general complaint than it does in ulcer. There is abdominal distention of gas scarcely located by the patient. Gas is belched, but not so much as in ulcer, and there is not the intense feeling of gas distention as is experienced at the height of a gall-bladder attack. The amount of sour eructations is not so great as in ulcer. In chronic appendicitis the patient is conscious of a feeling of slipping of gas in the bowels, and its passage gives a peculiar sense of relief, as at times do bowel movements. In this rather quiet and general way gas aids in the diagnosis.

BOWELS

Constipation is one of the early symptoms of appendicitis, and may be the only one for a considerable period. It is usually marked, though spells of diarrhea occur and usher in an attack. Free movements give considerable ease. Mucus is present though not distinctive.

APPETITE

In chronic appendicitis the appetite often fails, or it is so variable that this helps in distinguishing appendicitis from ulcer. At other times food is refused because of immediate distress, and when both factors are in action nutrition suffers. In ulcer the appetite rarely fails, except late, and if food is refused it is because of the pain, distress and vomiting that follows one to four hours later. Nutrition therefore usually suffers along the whole course of chronic appendicitis as a result of the diminished appetite or lessened intake of food, because of the immediate distress which follows. If nutrition suffers in early ulcer it is because of vomiting or due to diet to avoid late distressing symptoms. Nutrition rarely fails in gall-stones until pancreatitis or complications supervene.

TEST MEAL

The test meal is of value in the diagnosis because it is so negative. In a paper[1] on "The Value of the Test Meal in Gastric Diagnosis" we called attention to this fact. There are no food remnants in the meal, hence no obstruction, and this is evidence of value. The stomach is usually normal in size and position and the acids oftenest within the normal limits, though in some cases they may be high. No organic acids, no bacteria or blood, as a rule, are present.

TREATMENT

Treatment in chronic appendicitis will scarcely bear discussion. In ulcer of the stomach we do have medical cases in greater number than surgical cases. In gall-bladder diseases we may be pardoned for advising some sufferers to take the Carlsbad cure or other methods of treatment that may influence the oncoming of the later stage, but chronic appendicitis can only justly fall to surgery, and any other advice when the diagnosis is made must be considered faulty and perhaps dangerous. However, we cannot meet all cases clearly with only gastric symptoms present—pain, vomiting, gas, etc. If no history is recalled of pain radiating to right costal arch or back, or if no general liver pain can be elicited, with no history of sudden, short, mild or severe epigastric attacks, with abrupt cessation and perfect health immediately following, we cannot say gall-stones. If with these same symptoms of pain, gas and vomiting, and with the same epigastric location we can get no early history of periods of attack with regular symptoms one to four hours after food, with clear cessation of symptoms following food, drinks, etc., but only symptoms of chronic complicated ulcer, then we cannot decide. So also with the same signs if we can get no history of childhood or youthful attacks of diarrhea or "belly ache," no radiation of pain to the umbilicus or lower abdomen, no tenderness at McBurney's point, or other local manifestations, but only chronic gastric symptoms, then we cannot diagnose undoubted appendicitis. What we can say is, "You have a serious trouble, perhaps in the upper abdomen, and surgery affords the great chance of relief," and it should be accepted. If at operation the surgeon finds the upper abdomen normal, let him next look to the great likely point, the appendix. This holds out many promises of relief.

SUMMARY OF CASES

Of the patients 58 were females, 57 males. The average age was 34 years and the average duration 7½ years.

All patients have regained normal weight; many are above previously normal weight; none has lost weight.

Condition.	Number Cases.	Per Cent.
Cured: no symptoms	89	77.4
Very much improved	7	6
Improved: some occasional return of symptoms	13	11.3
No improvement	6	5.2
Total	115	

Condition of the appendix found at operation, classified pathologically:

	No. Cases.
Chronic appendicitis with fecaliths	58
Chronic adherent appendices	20
Chronic appendicitis	14
Chronic obliterating appendices	8
Chronic appendicitis, cystic tip	6
Subacute appendicitis	6
Carcinoma of appendix	1
Tuberculosis of appendix	1
Acute appendicitis	1
Total	115

STRANGULATED HERNIA IN AN INFANT OF FOUR MONTHS

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I report the following case of strangulated hernia in an infant 4 months old. Such cases are not common in patients under 2 years of age:

History.—Infant J. V., male, white, aged 4 months, the only living child of Dutch parents. The last statement partially explains why my orders were not always carried out, as the mother could not understand English. Two years before this child was born the mother was delivered of a full term child by embryotomy. The present child was delivered by me, August 15, 1909, by version and extraction; the mother having been in labor five days before I was called and the head having made no advance. The child was perfectly developed, weighing seven pounds at birth. The mother had plenty of breast milk for two weeks and then began feeding the baby on the bottle without notifying me, the food used being three parts milk and one part water. The bottle was given whenever the child cried. From that date the child became constipated, had colic, and cried a great deal.

I did not see the baby again until Nov. 4, 1909, when I was called to see another member of the family, at which time I prescribed for the baby a weak milk mixture, with resulting

1. New York Med. Jour., Sept. 4, 1909.

improvement in the intestinal condition. My instructions were followed for only a short time and soon the child was suffering with colic again.

Dec. 9, 1909, I was called and found a bubonocele as large as a hickory nut on the left side and a smaller one on the right side, both of which had appeared the week before. These were easily reduced and held in place by a pad and figure-of-eight bandage. December 25 I was called and informed the hernias had been all right until the morning of December 24, at which time the parents had not been able to reduce the left one and the child had been in great pain ever since. I was unable to reduce the hernia so I took the patient to the hospital at Volga, S. D., and operated immediately, thirty hours after the strangulation took place.

Operation.—An incision was made directly over the tumor. Within the sac was a loop of intestine, some omentum, and free fluid. The intestine was badly inflamed and adherent to the internal ring, but as there was no sign of gangrene I returned it to the abdominal cavity and did a Bassini operation.

Result.—The child made an uneventful recovery, returning home in two weeks. During its stay in the hospital the constipation was entirely overcome by a milk mixture suited to a child of three months; its weight increased and the signs of malnutrition present were fast disappearing.

ETHER: AN ANTIDOTE OF COCAIN AND STOVAIN POISONING

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Directly after the introduction of cocain to the medical and dental professions, a number of accidents were reported, many of them fatal. The novelty of the drug and its effects were fascinating, and the want of experience and knowledge of its dangers, unrealized as they were by the majority of physicians, made it an extremely dangerous agent in other than the most careful hands. In common with most practitioners, I had my share of cases of cocain poisoning, though fortunately none proved fatal. By far the greater number of deaths occurred in the hands of dentists. The use of the drug was an almost daily occurrence in their practice, and they seemed especially prone to disregard its dangers.

About fifteen years ago I had as a next-door neighbor a dentist with a very large extraction practice, and it became a not uncommon occurrence for me to be called in hurriedly to help revive some patient. To my knowledge, he had at least fifteen cases of cocain poisoning. Some were mild cases; many were profound and extreme. The symptoms were rapid and shallow respiration, feeble or absent pulse, with unconsciousness; in some cases the patients were difficult to revive. Nearly all exhibited extreme mental anxiety and restlessness.

In the first few cases I was called on to treat, strychnin and morphin in combination were used with marked benefit. But, as cases kept multiplying, I found the action of these drugs too slow, and I decided that there must be something to counteract the poison more rapidly when life was in extreme danger. It was necessary to find a remedy that could be administered at any time and be instantaneous in its action. I soon found ether to be the required drug. This was administered as ordinarily given to produce surgical narcosis. Ether stimulates the vasomotor system, is a tonic to the heart muscles, stimulates the action of the respiratory centers and of the brain and of the pneumogastric nerve, and increases the pulmonary circulation in the first stages. While cocain inhibits the action of the heart, especially on the right side, it has also a marked inhibitory action on the respiratory centers of the brain. Death may occur from feeble respiratory movements of the so-called Cheyne-Stokes type, or asphyxia.

To me ether has proved extremely valuable. It has saved what seemed hopeless cases. It stimulates the heart and the respiratory system almost instantly. The pulse beomes fuller at once and of normal tension. The marked mental excitement is allayed as the patient goes under the influence of the ether, and the effect of the poison rapidly disappears. The individual regains consciousness as soon as the effect of the small amount of ether has disappeared.

To get the best results, the anesthetic is administered only to the degree of mild surgical narcosis, or, at times, even less than this. A mask should be employed and the ether given by the drop method. This is all-important. Given by the old method, the ether would only add to the danger of asphyxia by excluding air from the venous blood engorged lungs.

It occurred to me that this suggestion might be of help to others as it has been to me. Just at present there is much interest in the work of Jonnesco and his use of stovain. Many physicians will undoubtedly be led to try stovain, or cocain, or some other synthetical preparation whose action is similar. While in Paris some years ago it was my privilege to witness Tuffier perform a number of operations under spinal anesthesia with cocain, all done in the brilliant style of this acknowledged master of surgical technic. In the last operation I saw in his clinic the patient did not bear the drug well, but began to show some very dangerous symptoms, and, in spite of the usual remedies, was soon *in extremis*. At my suggestion a few drops of ether were administered and all dangerous symptoms disappeared immediately.

POLAR LIGATION IN EXOPHTHALMIC GOITER

STAMM AND JACOBSON'S OPERATION

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Patient.—Mrs. H. of Oaklandon, Ind., was examined by me for the first time, Oct. 26, 1909. She was 36 years old, tall and of excellent physical development. The family and personal history were negative so far as any factors bearing on the status præsens were concerned, except, of course, the record of the illness here described, which had for two years run the course of a relatively typical case of exophthalmic goiter. Tachycardia had been from the beginning a prominent symptom.

Examination.—The pulse-rate at the time of the first examination ranged from 140 to 180, depending on such factors as rest, exertion, mental excitation and menstruation. The pulse cannot be said to have been regular, though perhaps not so markedly arrhythmical as in some cases of the most extreme type. The visible area of cardiac pulsation was distinctly increased and capillary pulse and throbbing pulsation of the large arteries were easily seen. The heart sounds were accentuated and heard at some distance. Exophthalmos was pronounced. Graefe's sign was present; the upper lid did not follow the eyeball. The palpebral aperture was plainly wider than is normal. Moebius' sign relating to the lack of convergence of the two eyes was positive. The thyroid gland was symmetrically enlarged to about six times its normal dimensions. Fine tremor of the spread fingers was likewise present. In addition to these symptoms there were present exhausting neurasthenia with insomnia, loss of flesh and muscular weakness. Glycosuria and albuminuria were absent.

Treatment.—Previous to this examination there had been no other treatment than the use of simple tonics. Neither pro-

tracted rest nor the ice-bag over the heart had been tried. Serum had not been used, nor had thyroidectin been employed. I believed that surgery at present offered the best chance for permanent relief in such cases. Thyroidectomy had proved efficient in my hands in two previous cases of exophthalmic goiter, but appreciating the dangers of a radical operation—dangers obvious to those who have extirpated the thyroid in exophthalmic goiter—I made in this case a polar ligation, a procedure recently presented by Dr. Martin Stamm of Freemont, Ohio, and performed by him and Dr. J. H. Jacobson of Toledo in a total of 11 cases, prior to October, 1909, with very satisfactory results. The operation, briefly, consists in ligating *en masse* without the capsule the two upper horns or poles of the thyroid.

Dr. J. H. Jacobson, in a personal communication, briefly describes the technic as follows:

After carefully palpating and determining the position of the upper pole of right lobe, a transverse incision is made directly over it. The incision is one to one and one-half inches long and extends through the skin, superficial fascia, platysma, down to deep fascia, when the inner border of the strenomastoid muscle can be seen. The inner border of the sternomastoid is then loosened, raised and retracted, exposing the fibers of the sternothyroid muscle, which run in the opposite direction to those of the sternomastoid. These fibers are separated for about one inch; the deep fascia covering the thyroid will then be exposed. This fascia is next divided, and the capsule of the gland brought into view. The muscles are well retracted by blunt hooks. A ligature carrier or a large curved pedicle or aneurism needle is used to pass the ligature. The material used for ligation has been mostly linen or silk. Theoretically it seems that heavy black linen, on account of its slowness of absorption, is best.

In passing the ligature around the upper pole on the right side, the blunt needle is passed from within out, while upon the left it is passed from without in, after first freeing and raising the pole somewhat by blunt dissection.

Theoretically at least, it seems that the ligatures should be placed extracapsularly for the reason that the lymphatic vessels of the gland parenchyma empty into the lymphatics contained within the capsule, and that the extracapsular ligature will more effectually stop the gland excretion.

Some little resistance may be encountered in passing the blunt needle about the pole; this, however, is quickly overcome. When the blunt point of the needle has been passed, the ligature is grasped and the instrument withdrawn. By cutting the loop, we have two ligatures surrounding the gland pole. These are carefully separated and tied, leaving a space between them of from one-fourth to one-half inch.

Immediately after ligation the gland tissue in the vicinity of the ligature becomes blanched.

The closure of the wound consists in the approximation of the muscles by one or two interrupted catgut sutures, followed by approximation of superficial fascia and skin.

It is believed by Stamm and Jacobson that the toxic principle in exophthalmic goiter escapes from the gland principally through the lymphatics and it will be seen that the polar ligation contemplates embracing in the grasp of the ligature not only the branches of the superior thyroid vein and artery, but the lymphatics as well.

In my case the polar ligation has been followed by steady improvement. The pulse-rate ranges now between 80 and 100 (January, 1910). The tremor is decidedly lessened and Stellwag's sign is no longer demonstrable. As might be expected, the thyroid gland is decreased in size.

It is too early to pass judgment on this procedure; it would be difficult to tell of how much value was the rest in bed. Jacobson and Stamm have carefully eliminated to their satisfaction such sources of errors in their own cases.

It will be at once apparent that the procedure is essentially different from simple extracapsular ligation of the vessels. In active acute exophthalmic goiter the dangers of thyroidectomy are serious, even if the gland be removed by the Crile method to avoid psychic shock.

331 North Delaware Street.

TRACHOMA

CULTIVATION OF A NEW BACILLUS *

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Since many have failed to cultivate the cause of trachoma, it seemed best to try special media. I had been doing some cultivation of the Koch-Weeks bacillus on 5 per cent. peptone, alkaline agar, and decided to try that same composition for the cause of trachoma, but, having in mind the fact that the gonococcus grows only in the presence of fresh blood or some exudate of the body, I added a sterile drop of blood from the ear of the patient from whom we tried to get the culture. This drop was smeared on the surface of the agar with a sterile platinum needle. At least one tube containing no attempt at culture was set aside in each case as a control of the securing of the blood in a sterile condition.

No.	Case From.	Smear.	Stain.	Culture.
1.	Drs. Shattuck and Christiansen.	Negative	Giemsa, King, Dil. Carbol-fuch.	B. trachus
2.	Drs. Shattuck and Christiansen.	Negative	Giemsa, King, Dil. Carbol-fuch.	Negative.
3.	Dr. Stafford	Negative	Giemsa, King, Dil. Carbol-fuch.	*Aspergillus flavus*
4.	Author	Negative	Giemsa, King, Dil. Carbol-fuch.	Negative

As is seen, two of the four cases examined were negative culturally, and a third gave a very common mold, which I would not think for an instant was the cause of the disease when so many had tried to cultivate it and failed.

The other case gave a culture of *B. trachus, nov. spec.*, 1909.

I do not claim for this that it is the cause of the disease, on account of lack of evidence, but will publish the characteristics in the hope that some one else may be assisted in carrying on the work.

B. trachus is a small polymorphous organism about 1 micron long and generally about one-third as broad as long. No spores or granules were made out. It is nonmotile. It stains poorly with methylene blue, but well with dilute carbol-fuchsin, Wright-Romanowsky modifications and also with Giemsa. It grows slowly on 5 per cent. peptone alkaline agar, blood-smeared, in small white colonies which become visible to the naked eye on the second day, and reach their maximum size (about 1 mm.) in five or six days. The organism will not grow on acid media; it remains alive on proper media for more than a month, and on 5 per cent. peptone alkaline agar for at least ten days without the presence of fresh blood; and on addition of fresh blood at that time (no longer time was tried), it required no longer for the colonies to become visible than if they had been put on proper media at the start. Clear blood-serum and clear exudates were not tried, with the agar base. The organism does not grow on ordinary alkaline agar.

* Work done in the laboratory of the Bureau of Science, Manila.

No positive results were obtained by animal inoculation. The conjunctiva of guinea-pig, rabbit and monkey (*Macacus philippinensis*) were used and no reaction was seen, though the animals were under observation for more than a month. The higher apes were not to be had for experimentation, and I did not think human experimentation justifiable; hence was not able to prove pathogenicity.

The fact that I was not able to secure the organism in all cases is somewhat against its being the cause of the lesions, but it grows with difficulty and it may be that my technic will be improved on. Stained in the cell (I was not able to stain it so), *B. trachus* might well have the appearance of the "trachoma bodies" described by various authors, several of whom are cited by Brown Pusey in his article on the subject in THE JOURNAL, July 3, 1909, liii, 28.

OBSERVATIONS DRAWN FROM ONE HUNDRED CASES TREATED BY VACCINE THERAPY

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It is my purpose in this paper to classify the cases which have been treated, first as to their type and, second, as to their amenability to therapeutic immunization, giving detailed description only of cases of special interest.

The technical terminology used in vaccine therapy, being very involved and confusing to readers not familiar with the literature of the subject, will be avoided; instead my effort shall be to convey my statements in relatively simple terms.

Since no radical changes have been made in the technic of late, it will suffice to say that I have largely followed the methods devised by Wright, omitting the estimation of the opsonic index as a routine.

The employment of vaccine therapy has been received with as large a degree of enthusiasm as was given to the *x*-ray in its early development, and has been accorded practically a like all-healing influence in all forms of infections. With the idea of testing the efficiency of the method, I have accepted all classes of infection and have satisfied myself as to its limitation in the present state of our knowledge.

It is the consensus of opinion among workers in bacterial therapy that autogenous vaccines produce the best results; therefore these were used whenever possible, but when time or conditions did not permit their preparation stock vaccines were used.

The estimation of the opsonic index, I am convinced, is at the present time the best means of controlling the dose of the vaccine employed, but since it is so rarely necessary, and consumes so much time, I have omitted it as a routine, employing it only in cases in which my clinical rules were not a sufficient guide.

CLINICAL RULES FOR DOSES

No hard and fast rule for dosage can be made, inasmuch as different strains of the same organism have different degrees of virulence and the patients as many different degrees of susceptibility. Generally speaking, the more acute the infection the smaller the dose. Chronic cases, on the other hand, sometimes require enormous doses to bring about the desired effect.

In a case of pustular acne with a staphylococcus as the causative organism, for example, it has been my custom after preparing the vaccine, to inoculate the patient with an initial dose of 200,000,000 staphylococci, instructing him to return at the end of seven days. If at this time his pustules are fewer in number, more superficial or smaller, he is instructed to return three days later. If at this time he tells me that his face is not as clear as it was on the ninth day, he is reinoculated and instructed thereafter to return every eighth day, assuming that at this time his immunity had reached its height and by reinoculation will be held there. The initial dose is used until improvement lags, when it is doubled.

In cases of mixed infection, as for an example, an empyema, with a staphylococcus and a pneumococcus as the causative organisms, I first make a smear from the pus of the discharging sinus, stain it, and estimate the numerical proportion of the two organisms present, and hold to this ratio in inoculating the patient with the corresponding vaccines. Occasionally this method will not suffice and the estimation of the opsonic index must be resorted to.

I have found that rapid results can be produced by large doses at the first inoculation, but that the succeeding ones are not nearly so satisfactory. The best results were obtained by beginning with a minimum dose capable of producing results and increasing as directed above.

In nine children, varying in age from 3 months to 2 years, whom I have treated for general furunculosis, 50,000,000 staphylococci made a satisfactory initial dose, and in six cases 200,000,000 were given without untoward results before inoculations were discontinued.

Too much stress cannot be laid on the subject of doses. I am convinced that many failures are due to incorrect dosage and improper spacing of inoculations.

I have divided my cases into four classes, as to their type, duration, severity, and amenability to therapeutic immunization.

Class A.—Subacute infections, with pyemia as a type.

Class B.—Chronic infections, with pustular acne or an otitis media as a type.

Class C.—Acute localized infections, with erysipelas or acute cystitis as a type.

Class D.—Acute general infection, with septicemia as a type.

Of these four classes the most amenable to bacterial therapy are Classes A and B, or the subacute and chronic infections, next the acute localized infections, and lastly, if at all, the acute general infection.

As stated in the opening paragraph, further to explain what vaccine therapy may be expected to accomplish, it will be necessary to discuss a typical case of each class taken from the tabulated report appended to this article.

CLASS A: SUBACUTE INFECTIONS

Patient.—Mrs. B., aged 29, married, admitted to St. Alexis Hospital, gave a history of eight weeks' illness following an abortion committed on herself by inserting a piece of slippery elm into the uterus. At the time she performed the abortion she had an infected finger on the right hand which she used in performing the operation. Three days after the discharge of the fetus she had a chill, a physician was called and advised a curettage, which was done, but nothing of importance was found in the uterus. From this time up to her admission to the hospital her temperature varied from 101 to 103; pulse 120. There was steady loss of weight and occasional diarrhea, loss of appetite, slight seropurulent uterine discharge and some tenderness over the lower part of the abdomen. After her admission to the hospital a smear from the uterine discharge showed a *Staphylococcus aureus*.

Treatment and Course of Disease.—An autogenous vaccine was prepared and the patient inoculated with 200,000,000

staphylococci. On the following morning large wheals resembling urticaria appeared all over the body, and the temperature reached 104, pulse 150. The following day the temperature dropped to 100, pulse 90, and the wheals began to disappear. Three days later the temperature reached normal and her pulse to 90, and the patient expressed herself as feeling well. On the eighth day, with the temperature still normal, pulse 80, another inoculation of 200,000,000 staphylococci was given. Steady improvement followed for three weeks when the temperature again rose to 100 and pulse 120. On examination a pelvic abscess was found and opened per vaginam, after which the temperature again came to normal. From now on the patient's recovery was uneventful and after four weeks was discharged from the hospital recovered, having in all received four inoculations.

In this class of cases, owing to the facts that the areas of infection are walled off by fibrin, which for the want of a better term, may be called a pyogenic membrane, and that the organisms causing the infection are usually of comparatively low virulence, the antibodies of the blood are either so slowly, or slightly, stimulated that the immunizing machinery of the body becomes accustomed to their presence, or is not sufficiently irritated at any one time to produce a sudden attack which would result in a spontaneous cure as occurs in the crisis of pneumonia.

If now in these cases a little additional stimulus can be given to the immunizing property of the blood, a crisis will result. This is precisely what a vaccine accomplishes. The organism producing the infection, after being cultivated and carried through the necessary steps of the laboratory technic, is then introduced into and set free in the patient's blood, thereby contributing the necessary stimulus.

Under this classification I have treated otitis media of two or three weeks' standing, subacute cystitis, palmar abscesses, furunculosis, carbuncles, and infections following injury.

Cases under this class were chosen as most suitable to bacterial therapy because the results were uniformly good and permanent.

TABULATED REPORT ON RESULTS OF 100 CASES TREATED BY VACCINE THERAPY

Kind of Infection.	Duration of Infection.	Number of Cases.	Organisms Producing Infections.	Average Number of Inoculations.	Number Cured.	Number Improved.	Number Not Improved.	Average Interval Between Inoculations, Days.	Deaths.	Cause of Death.
Pustular acne	6 months to 3 years	19	Staphylococcus albus and aureus acne bacillus	15	7	10	2	8		
Pustular eczema	3 months to 8 years	3	Staphylococcus albus	12	3	—	.....	9		
Tinea sycosis	1 week to 3 weeks	4	Staphylococcus albus	4	4	.....	.....	.....		
Furunculosis	4 days to 10 weeks	14	Staphylococcus aureus and albus	6	14	.....	.....	.....		
Carbuncle	7 days to 3 weeks	3	Staphylococcus aureus	5	3	.....	.....	.....		
Gonorrheal arthritis	2 weeks to 14 weeks	14	Gonococcus	9	9	1	4	10		
Pyemia	2 weeks to 8 weeks	5	Staphylococcus albus and aureus	5	4	.....	.....	7	1	Cerebral embolism.
Posterior urethritis	2 months to 4 years	6	Gonococcus, staphylococcus, short bacillus	12	0	0	6	8		
Cystitis	5 days to 3 months	4	Colon, bacillus, gonococcus	6	3	.....	1	.....		
Otitis media	2 weeks to 30 years	3	Staphylococcus albus and short bacillus	7	2	.....	1	.....		
Thoracic sinus	6 months to 3 years	3	Pneumococcus, bacillus pyocyaneus, staphylococcus albus.	15	1	1	1	8		
Bronchiectasis	1 month to 17 years	3	Pneumococcus, staphylococcus, streptococcus and unidentified organisms.	20	1	.....	2	7	1	Cerebellar abscess.
Abdominal sinus	2 months to 3 years	4	Colon bacillus, staphylococcus albus	10	1	2	1	8		
Erysipelas	1 to 14 days	9	Streptococcus	2	8	.....	.....	4	1	
Septicemia	2 to 4 days	7	Streptococcus	5	3	.....	.....	3	4	Septicemia.

CLASS B: CHRONIC INFECTIONS

The results in this class of cases were satisfactory, although not as uniformly good, as striking or as rapidly produced, as those of Class A, and this for at least two reasons:

1. In the patients presenting themselves for treatment under this classification, the infection had existed from six months to a lifetime. During all this time the immunizing machinery of the blood had been so often and so gradually stimulated by autoinoculation that it had accustomed itself to the presence of the causative organism in the body. When this condition and no mechanical interference to the circulation is present good results are produced, but the number of inoculations required may be three or four times as great as in similar cases in Class A.

2. Some infections of years' standing, as, for example, an old abdominal sinus, are so thickly walled off by fibrin that little blood can reach the part, on account of the mechanical interference present. One can readily understand how ineffective a vaccine of itself would be in this condition. If, however, a 0.5 to 1 per cent. sodium citrate solution can be injected into the sinus two or three times a day so that by the power of osmosis serum is brought to the part, good results can be obtained. I have an interesting case in a thoracic empyema illustrating this point.

Patient.—Mr. S., aged 25, gave a history of an attack of lobar pneumonia followed by a pyothorax, in the fall of 1907. A resection of a part of two ribs was done and drainage established; after the third week the discharge lessened to about 4 drams a day. This condition persisted with slight improvement and six months ago the patient was referred to me for therapeutic immunization.

Treatment and Course of Disease.—An autogenous vaccine of a pneumococcus and staphylococcus was prepared and four inoculations of 200,000,000 staphylococci and 300,000,000 pneumococci were given at seven-day intervals, but with no improvement. From this time on the sinus was irrigated twice daily with a 1 per cent. sodium citrate solution with almost immediate improvement, and after nine inoculations the discharge completely disappeared and has never reappeared.

Inasmuch as so little is yet understood about the mechanism of immunization, many unexplainable things occur in the practice of this form of therapy.

One is occasionally surprised to find a chronic condition, as in the following case, respond rapidly to bacterial therapy, when no other measure of treatment is used and where little benefit is expected.

Patient.—Mrs. W., aged 30, was referred to me for therapeutic immunization for otitis media. Her ear had discharged almost continuously since she was six months old. Three years age she submitted to a radical mastoid operation. Her recovery was prompt and the discharge stopped for six weeks—the longest absence of discharge in her lifetime. At the end of the seventh week the discharge began anew, and after two

years' subsequent treatment by an otologist she was referred to me for vaccine treatment.

Treatment and Course of Disease.—A smear from the discharge showed a staphylococcus and a short unidentified bacillus. A vaccine of the corresponding organisms was made and the patient inoculated with 200,000,000 staphylococci and 300,000,000 of the unidentified bacilli. After four inoculations the discharge stopped completely. After the fifth inoculation it started again, and after the seventh inoculation it disappeared. Three more inoculations were given without its return. Four months have passed since the last inoculation and the discharge has remained absent.

The cases treated under this classification were pustular acne, tinea sycosis (barber's itch), pustular eczema, gonorrheal arthritis, cystitis, furunculosis, abdominal and thoracic sinuses.

How long do the patients remain well after inoculations are stopped?

Before answering this question, it might be well to mention that practically all patients with chronic infections presenting themselves for therapeutic immunization have been suffering from six months to a lifetime, and from time to time have been under the care of several physicians, so if they are only benefited a great deal has been accomplished. This, however, is not the usual result. At least 40 per cent. of the patients are permanently cured, 50 per cent. improved, a total of from 75 to 90 per cent. markedly benefited, 5 per cent. slightly benefited, and the remaining 5 per cent. not helped at all.

CLASS C: OR ACUTE LOCALIZED INFECTIONS

At the suggestion of vaccine therapy in this type of infection two questions immediately present themselves to the mind:

1. Have the number and virulence of the organisms producing the infection been so great as to produce a marked negative phase or temporarily to paralyze the immunizing machinery of the blood by over-stimulation? This phenomenon, we know, can take place, as illustrated in chronic infections by the marked negative phase lasting five or six days which can be produced by large doses of vaccine, and which results in a temporary aggravation of the condition present.

2. Have the number and virulence of the causative organs been great enough to stimulate the antibodies of the blood to the height of their action? The estimation of the opsonic index is the surest means of answering these questions. No clinical rules can be made with any degree of accuracy, although I might say that vaccines were not effective in acute, rapidly spreading infections.

Should the opsonic index be markedly low, showing an over-stimulated condition of the immunizing machinery of the blood, a vaccine could be expected to do little less than harm. Should it be relatively high, vaccines in small doses repeated every other day are capable of doing good.

In three instances in a series of 9 cases of erysipelas treated, the crisis was produced within three days from the onset of the disease. One patient died of acute dilatation of the heart, and the remaining five ran the usual course of the disease.

Since such a large percentage of erysipelas patients recover rapidly of their own accord, I think that vaccines, instead of being used as a routine in the treatment, should be reserved for those cases running an unusually long course or those accompanied by abscesses, which are occasionally seen.

Palmar abscesses, or other acute localized infections in other parts of the body, respond best to therapeutic inoculations five or six days after drainage has been established. At this time they may be classed as subacute infection, which, as has been said previously, are most amenable to this form of therapy.

CLASS D: ACUTE GENERAL INFECTIONS

Here we have an infection with a causative organism, usually the staphylococcus or streptococcus, alive and free in the blood stream. What value can be gained by inoculating the patient with a few million more dead ones, when he already has an overabundance of the best stimulus which can be hoped for?

If we are willing to accept the theory advanced in explaining the results in cases under Classes A and B, we cannot consistently believe that vaccines would do septicemia any good. To satisfy myself as to the limitation of the method, however, and since no other means of treatment are of much value, I have accepted 7 cases for this form of treatment. Three of the patients recovered. Since the mechanism of immunization is as yet not understood, I have no right to say that vaccine did not play a part in their recovery, but I feel that they would have recovered just as rapidly without its use. Too much credit should not be given to its use in the cases of recovery until its reach in this infection has been determined by a sufficient number of cases. The therapeutic measures previously relied on in the cases now so satisfactorily treated by vaccine therapy are as good to-day as they ever were and their abandonment would be an extravagance.

Cases of pustular acne or eczema which receive required constitutional and local treatment in addition to therapeutic inoculations respond more rapidly than if vaccines were used alone; likewise cases of gonorrheal arthritis should receive hyperemic treatment of the affected part in some form. Abscesses and sinuses should be given the best advantages of drainage, etc.

With this combination we have a means of successfully treating a large number of infections previously beyond the reach of other therapeutic measures.

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COCCYGODYNIA

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Coccygodynia—pain in the coccyx—is an annoying, painful and fairly frequent affection, occurring usually in women and caused almost invariably by a fall in which the patient lands in a sitting posture and injures the coccyx. The injury as a rule is a fracture. It is followed by pain at the seat of the injury, worse on sitting, on rising from sitting and on defecation. The pain may be severe and is wont to be accompanied by various neuroses.

The diagnosis is made by pressure on the coccyx with the examining finger, or with the finger in the vagina or rectum and the thumb on the coccyx. This pressure elicits pain. The coccyx may or may not be movable; it may be in its proper relation with the sacrum, or it may be bent forward at an angle.

The ordinary treatment by a rubber cushion to sit on, or even by a resection, is highly unsatisfactory. For years I have treated these cases by a method that is almost uniformly successful, but appears to be not generally known. I do not think it is original, but I have used it for so long that I forget where it was obtained.

It consists of massage of the coccyx by means of the forefinger in the vagina and the thumb on the outside, holding the bone between them. The bone is moved backward and forward, and the soft parts are moved about on the bone. The manipulation is begun very lightly and gradually increased in force as the patient becomes less sensitive. Usually two or three treatments at intervals of two or three days will suffice for a cure. The improvement is almost instantaneous.

201 West Fifty-fifth Street.

ENTOTIC TINNITUS, PERCEIVABLE OBJECTIVELY, IN PREGNANCY

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COLUMBIA, S. C.

In January, 1907, Dr. R. A. Lancaster of this city requested me to see Mrs. T., aged 30, who was complaining of a noise in her left ear which was so persistent and annoying that sleep was greatly interfered with and decided nervous symptoms had appeared.

The woman was eight months pregnant and the noise had begun about a month before my visit to her. Examination showed nothing abnormal in either the conducting or the perceptive mechanism. Any one within six inches of the patient's left ear could easily hear a fine chirping sound synchronous with each systole of the heart, and disappearing with pressure on the external carotid. An auscultation tube greatly magnified the objective sound, which was very much like the chirp of a sparrow. No aneurismal bruit could be discovered about the head, and urinary analysis and ophthalmoscopic examination failed to reveal any pathologic lesions. The woman was rather large and well built, and had experienced no trouble in her pregnancy until the tinnitus appeared. No syphilitic history could be elicited, and iodids and bromids failed to give any relief. Immediately after the uterus emptied itself the tinnitus disappeared and there has been no recurrence.

As there are so few cases of this kind reported, this one seems worthy of record.

1409 Gervais Street.

THE MORO REACTION DISCREDITED AS A PRACTICAL TEST FOR TUBERCULOSIS

FRED R. CHARLTON, M.D.
INDIANAPOLIS

At intervals during the past eighteen months I have been resorting to the Moro test as an aid to diagnosis in suspected tuberculous cases. I have not kept a record of the number of applications made during that period, but would roughly estimate them as about forty. With the exception of perhaps five, there has been a more or less positive reaction in each case. I have permitted these reactions to influence me in making my diagnoses. In a number of instances I could hardly credit the evidence, there being almost no clinical indications to correspond, the test having been used more with the thought of resorting to every possible aid than from any definite suspicion of tuberculosis.

Gradually I became skeptical as to the test having clinical value. Recently I applied half of a tube in a case in which there was some obscurity and yet nothing to warrant a strong suspicion of tuberculosis. The remainder of the same tube I applied to myself as a control. In forty-eight hours the patient and I were both showing marked reaction, having extensive areas presenting areolæ with papules, many of these tipped with vesicles. As to myself, I am of a ruggedly healthy type, having been at top weight without considerable variation for four years, and present no clinical evidence of any illness whatever warranting even a consideration of tuberculosis.

About this time I learned that a number of the internes and nurses at the Indianapolis City Hospital had applied the Moro to themselves and that all of them presented a more or less typical papulovesicular rash with reddened base. In conversation with other physicians I found several who could not believe tuberculosis as prevalent as indicated by this reaction. Looking about for a fair clinical test, I asked for volunteers from one of our student sections in the Indiana University School of Medicine. Seven responded, including two internes in the Indianapolis City Hospital.

In five of this group the reaction was positive and marked. In two it was slight, the rash being more scattered, smaller and with less associated redness. In one only did the skin remain clear. Now I submit that the above statements give good ground for skepticism.

Now, the crux of the situation lies in this: that all over the country men are permitting themselves to make diagnoses on this insufficient and shadowy evidence.

If an individual has no clinical evidence of pneumonia and goes about his work the picture of health and well-being, he is not to be considered as a pneumonic because the pneumococcus is discovered in some of the pharyngeal secretions, or because he possibly might yield some remote and hair-splitting serum reaction. To carry the analogy still farther, it may be asked what the deduction is if the hypothetical serum reaction is the sole evidence, and the pneumococcus has not even been determined. The absurdity becomes more apparent; and yet this is exactly what we have been doing when we place diagnostic dependence on the Moro tuberculin reaction.

Suppose, for the sake of illustration, an individual admittedly free from any immediate syphilitic taint; further, let his immediate progenitors be granted to have been equally free from syphilis. Somewhere back in the line, however, perhaps three or four generations, there was a syphilitic. Now apply a precipitation or some similar test only a little more delicate than those we are already using and we get a positive reaction. Is our individual to be labelled as a syphilitic?

There is ever the dividing line between the theoretical and the practical. Theoretically this individual is tainted. He has responded to a delicate but accurate test, and in that sense he is a syphilitic. In that sense every member of the human family would be a syphilitic. But practically, clinically, judged by that much-abused standard of common sense, the individual is not a syphilitic and will never be the worse because of that remote taint.

The laws of heredity govern these questions. Nature tends to eliminate during the progress of generations all taints and contaminations, and the proof of it lies in the fact of the existence of the race in its present ruggedness and fitness.

Clinically this hypothetical individual is not syphilitic, and it were better if such a taint were never thought of, discussed or considered as carrying weight.

To return to the consideration of the Moro reaction, of what clinical value as a diagnostic aid can a test be that marks the overwhelming majority of the human family as tuberculous? Let it be granted, for the sake of the argument, that it and kindred tests have a laboratory value, a true scientific basis, and so are worthy of thought and further study. This and kindred studies promise much and should be pursued. Much will in the end come out of present indefiniteness and uncertainty

that may be valuable; but to-day in the hands of the practitioner of medicine I deny that the Moro test for tuberculosis has any dependable clinical value whatsoever. The false value placed on it, however, is leading to the ever-threatening and apparently inevitable abuse; physicians turn to it as a short cut to diagnosis. The old classical clinical study is in danger of being discarded. Consideration of subjective and objective symptoms, variations in weight and temperature—these mainstays are in no little danger of being discarded for this laboratory method that saves trouble and is offered to the profession with such "cock-sure" assurance of diagnostic infallibility. I feel that it is one of the hurtful measures that has been foisted on the medical profession and that I would not be doing my duty did I not protest against it. Let others try it as I have done on a series of healthy individuals, instead of supinely accepting and depending on its misleading evidence. In my opinion, the reaction will then find its proper place—in the research laboratory. It will certainly play no part in the practical diagnosis of tuberculosis.

Willoughby Building.

PROENCEPHALIC FETUS

C. GEORGE BULL, M.D.
ALAMEDA, CAL.

Recently I delivered a woman, seven months pregnant, of a five months' male fetus in which the brain protruded from the mouth. The brain was normal and connected with the spinal cord through a small slit between the palate bones. The cranium was empty, except for the dura mater and tentorium cerebelli. There was a large amount of liquor amnii. The falx cerebri was attached strongly to the gums of the upper jaw. The fetus was somewhat macerated, the cranial bones being loose. In all other respects the fetus was normal.

The mother stated that she felt the child's movements first about four and one-half months and for two weeks after; then they suddenly ceased.

The woman had had two children, one of whom died at birth after instrumental delivery; it was normally formed. The other child is alive and well.

There is no specific history; both parents are well and healthy; the father is 35 and the mother 29.

Therapeutics

LACTIC-ACID PRODUCING BACILLI IN INTESTINAL INDIGESTION

The several methods of administering lactic-acid bacilli were described in THE JOURNAL last week. The value of this treatment in intestinal conditions will now be discussed.

Dr. J. Madison Taylor, of Philadelphia, in *Dietetics* (Philadelphia), January, 1909, records some clinical observations which he made twenty-six years ago during his neurologic services at the Howard Hospital. He describes the patients as "a large number of poor old bodies, mostly 'retired' servant girls, subsisting during their declining years on their little savings, and wretchedly enough, too. They complained uniformly of 'nervousness,' compounded of monotony, loneliness, evaporated hopes and shreds of divers bodily ailments. Their diet, of necessity, was scanty, consisting chiefly of 'bread and tea.' Actuated chiefly by considerations of dietetic economy, I urged them to buy buttermilk, which in those days was readily procurable at a cost of 5 cents a quart. (Now commercial 'buttermilk' is usually skim milk acidulated by a 'starter.') The satisfactory and uniform improvements following the use of this cheap food were matters of astonishment to myself and my assistants, no matter what other and profoundly scientific 'treatment' was instituted also." These patients so treated gained strength and vigor, improved mentally, their digestion improved, they slept well, and even the blood condition was improved. "These results were at that time attributed to the ready digestibility and sustaining powers of the milk proteids and to vaguely understood dietetic and laxative effects."

These observations of Taylor, although strictly empirical, nevertheless possess no inconsiderable significance. Later bacteriologic studies throw a clearer light on the direct cause of the usefulness of buttermilk.

A more recent experience is that which Charles Hunter Dunn, of Boston, related in the *Archives of Pediatrics*, April, 1907. Dunn adopts the classification of the gastroenteric diseases of infancy and childhood, followed in the department of pediatrics of the Harvard Medical School, viz.: infectious diarrhea, in which the parasite infects and lives on the tissues of the body, and intestinal indigestion of the fermentation type, also spoken of as fermental diarrhea, in which the pathologic process is caused by a saprophyte living on the intestinal contents. Clinically, "the former is characterized by persistent fever and the early appearance of the signs of ileocolitis, i. e., mucus and blood in the discharges. The latter is characterized by the absence or brief duration of fever and by the signs of excessive fermentation in the discharges, that is, a green color and foul odor, with signs of ileocolitis only after prolonged illness, if at all."

Dunn refers to the paper of Tissier, published in the *Annales de l'Instit. Pasteur*, xix, No. 5, in which the latter expresses the belief, based on careful studies of the intestinal flora in health and disease, that "in health the *Bacillus bifidus* is the predominating organism of the dejecta in overwhelming predominance," and that in disease this *Bacillus bifidus* disappears and a number of abnormal forms appear. Of these, the *Bacillus perfringens* is regarded by Tissier as the cause of that class of cases designated as fermental diarrhea. In the treatment of these cases Tissier uses pure cultures of the lactic-acid bacillus, "and under this treatment he notes a rapid transformation of the stools, subsidence of the symptoms and gain in weight."

Dunn selected buttermilk as a convenient vehicle for administering lactic-acid bacilli, first because it seemed probable that by thus combining medicine and food a larger number of the organisms could be introduced than by using small doses of bouillon cultures in addition to the food, and, second, because it seemed desirable to use a constant food in all cases, one which should be digestible and one which should not be likely to cause trouble on account of a possible intolerance for proteid or fat by the patient.

The buttermilk was prepared by first pasteurizing the milk and then inoculating it with a pure culture of lactic-acid bacilli, ripening it until the growth of the organism had produced the proper acidity and precipitation of the casein. The particular strain of the lactic-acid bacilli used was isolated by the bacteriologist associated in the work, who selected it on account of the delicate aroma it produces.

It has been the practice of many physicians who have used buttermilk in the treatment of gastrointestinal disease to pasteurize it, but by doing this they have carefully avoided deriving any benefit from the living lactic-acid bacilli, and it has been found clinically that patients who do well on such pasteurized buttermilk also do well on properly modified milk.

The unpasteurized buttermilk was used by Dunn in 35 cases which had resisted the usual treatment for fermental diarrhea, consisting of the administration of castor oil or calomel, then allowing no food except boiled water for twenty-four hours, and then a weak form of modified milk.

Of the 35 cases, 5 were of the irritative type, and the treatment failed; 2 cases were infections, but probably of dysenteric origin, characterized by persistent fever and bloody-mucous stools. In these also the treatment failed. Of the remaining 28 cases, 23 were successful, 3 were partly successful, and in 2 the treatment failed.

In order to eliminate the possibility that the favorable results were due to the buttermilk and not to the living lactic-acid bacilli, to 14 of the resistant cases pasteurized buttermilk was given long enough to demonstrate a failure to improve, after which the pasteurization was omitted, and in every case immediate improvement followed.

Dunn concludes that the use of living lactic-acid bacilli is a harmless method of treatment, and that it may do good in cases of intestinal fermentation. It is an additional resource in a very difficult class of cases. It certainly has a logical scientific foundation, and may in time take a high place in the scale of efficiency.

THE POSTPONEMENT OF SENILITY BY LACTIC ACID BACILLI

The intestinal canal contains a variety of bacteria which cause putrefaction and fermentation of the residue of the various articles of food contained therein. From the changes in the proteids there result, first, the normal products of proteolytic digestion and, second, if abnormal changes occur, there are formed indol, skatol, gas and many other toxic substances, the nature of which have not been definitely determined. When the carbohydrates undergo abnormal fermentation a greater volume of gas is usually produced than in proteid disintegration, and it is accompanied by the formation of butyric and other irritant acids.

Intestinal putrefaction gives rise to different symptoms in different classes of individuals. In infants and young children it is usually accompanied by gastrointestinal disturbances, such as vomiting and diarrhea, and, if these conditions persist, by malnutrition and a retardation of growth. In adults acute intestinal autointoxication generally gives rise to the group of symptoms commonly designated as biliousness, while the chronic form may cause anemia, neurasthenia, neuritis, cutaneous diseases, kidney irritation, arteriosclerosis and various other conditions, as has been pointed out by Dr. George M. MacKee, of New York, in several recent publications (*New York Jour. of Med.*, September, 1908; *Dietetic and Hygienic Gazette*, June, 1908).

Intestinal putrefaction of the proteolytic type is indicated by the presence of indican in the urine; when it is of saccharolytic type, by ethereal sulphates.

The absorption into the blood and the circulation through the body of the various products of putrefaction and abnormal fermentation give rise to increased growth of the interstitial connective tissue of glands, a morbid change commonly known as sclerosis, and to degeneration of the characteristic cells of the different glands and tissues of the body. The chronic interstitial sclerotic changes and parenchymatous degenerations are generally recognized as characteristics and accompaniments of senility or old age. Metchnikoff, of Paris, has elaborated and popularized this idea, and has urged that the coming on of senility may be postponed by preventing the putrefaction and fermentation in the intestine, and that this may be accomplished by the constant use of milk soured by and containing live lactic-acid bacilli. He contends that other injurious bacterial changes in the alimentary canal can be avoided by encouraging the growth therein of the harmless lactic-acid bacilli, which will prevent the development of the injurious bacteria. As presumptive truth of the inherent probability of this proposition he cites the long life of the Bulgarians who make sour milk a large part of their dietary.

The Bulgarian fermented sour milk, known as yahourth, has been studied with reference to the bacteria contained in it, one of which, called the bacillus of Massol, produces much larger amounts of lactic acid than the other so-called lactic-acid bacilli. It is proposed by cultivating this in milk, which has been sterilized, to produce a sour milk containing a pure strain of active lactic-acid bacilli, and which will at the same time be free from any injurious bacteria. It is believed that the constant use of this as an article of food will prevent the growth in the alimentary canal of the bacteria which cause putrefaction and abnormal fermentations, and that consequently there will result no toxic substances to be absorbed. Thus the tissues and organs of the body will be relieved of the destructive irritations caused by the absorption of these toxic products of bacterial growth, and as a result of this the changes incident to old age will be long postponed.

While, as has been pointed out, the multiplication of the bacteria of putrefaction and of abnormal fermentation in the intestines is accompanied, in most cases, in children, by diarrhea, in adults, on the other hand, constipation is a common result. Gaillard, writing in the *Journal de Médecine de Paris*, Aug. 8, 1908, noted in the *Medical Record*, Oct. 3, 1908, expresses the belief that constipation is closely associated with autointoxication, particularly that resulting from the decomposition of albuminoids. The action of the bacteria which act on vegetable compounds, and which produce antiseptic compounds in the form of organic acids, such as lactic and acetic acids, is antagonistic to this autointoxication.

Gaillard begins the treatment "by placing the patient on a diet that includes vegetable gruels made with milk, potatoes, eggs and small quantities of meat. He thus encourages the proliferation of the amylolytic microbes, which are useful, at the expense of the proteolytic organisms, which are harmful. The patient is also given a bouillon culture of lactic-acid bacteria, which by its action produces antisepsis. As soon as the digestion has been regulated in this way defecation occurs with regularity without other treatment." He reports several patients treated in this manner with favorable result.

Diagnostic Importance of Loss of Corneal Reflex.—In the *Neurologisches Centralblatt*, 1910, xvi, 66, A. Saenger relates a number of instances of various intracranial lesions causing the loss of the corneal reflex. This is liable to occur not only with processes in the brain, especially with tumors in the posterior spinal fossa, causing compression, in which case the loss of the reflex is on the same side, but also with processes that do not compress adjacent organs; in this case the loss of the reflex is contralateral.

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[For other information see second page following reading matter]

SATURDAY, MARCH 19, 1910

A DEPARTMENT OF HEALTH

The introduction into the Senate by Mr. Owen of a bill proposing the establishment of a Department of Health, which we printed three weeks ago[1] and the correspondence between Senator Owen and Dr. Charles A. L. Reed, printed on another page of this issue[2] seem to indicate that a movement for a Department, rather than a Bureau of Health, is taking shape in Congress; at least the cause has a staunch champion in the Senate. This is gratifying, since it is known that Senator Owen's bill was not prompted either by the American Medical Association or by the great lay movement represented by the Committee of One Hundred—the two organizations that have come to be recognized as the natural sponsors of all manifestoes in behalf of advanced health legislation. The measure is therefore to be accepted as additional evidence of popular interest in a movement of deep and vital concern to the people.

Senator Owen comes squarely to the old issue of a department versus a bureau and does so in language that leaves no doubt as to his attitude in favor of a department with a secretary in the Cabinet. His position is sustained by reasons that would seem sufficient. The importance and the dignity of the task of conserving human health as a means of preserving human life, efficiency and happiness, are considerations which enter into his argument for a department. As Senator Owen recognizes in his letter, we already have a Bureau of Public Health. The proposal to create another would be in a sense to propose a duplication of governmental machinery. If health agencies that exist in other departments are to be transferred and made parts of an existing bureau, they must become subordinate divisions of that bureau. While such a proposition might be considered, it would naturally arouse a storm of protest from the bureaus themselves as well as from the departments affected. The natural antagonism thus aroused would probably result in the defeat of the proposal. What is needed is to increase and not to lessen the prestige, influence, power and efficiency of every bureau, division, institution or agency that has to do with the conservation of health.

That this can be more satisfactorily done by a department seems evident from Dr. Reed's summary of reasons for the creation of a department—namely, that sanitary science has demonstrated its efficiency and that the people are in need of its benefits; that a Bureau of Health now exists; and that the established precedent demands its advancement to a department. While no bill has as yet been introduced in the House, the Committee on Interstate and Foreign Commerce can take up the question, following the suggestions contained in the President's message regarding advanced health legislation. The Committee on Medical Legislation of the American Medical Association has already applied to Mr. Mann, Chairman of the House Committee, for a hearing on the general question, as well as on specific points enumerated in Dr. Reed's letters to Senator Owen and Mr. Mann.

Mr. Mann's championship of the pure Food and Drugs Act and his identification with other progressive public health legislation lead to the hope that he will be equally zealous in the behalf of the department idea. There is a growing demand on the part of the press, both lay and professional, for greater activity on the part of the national government in the conservation of the public health. It is also known that many senators and representatives are already favorably inclined to the idea of a department. It seems, therefore, that the time is opportune for every citizen interested in the welfare of the people not only to echo but also to act in accordance with the sentiment of Senator Owen, when he says: "I believe in *conservation*, and first of all in the conservation of human life."

1. THE JOURNAL A. M. A., Feb. 26, 1910, liv, 725.
2. Correspondence Department, p. 985.

THE CIRCULATORY CHANGES IN CHRONIC NEPHRITIS

Chronic arterial hypertension has long been recognized as one of the earliest and most important signs of chronic interstitial nephritis, and, together with hypertrophy of the heart and arteriosclerosis, forms a characteristic triad of signs. The several hypotheses which have been advanced to explain these circulatory changes may be classed as either mechanical or chemical.

The purely mechanical explanation, first advanced by Traube, and elaborated into its present widely accepted form by Cohnheim, assumes that the increased blood pressure is an attempt on the part of the heart and arteries to maintain a normal flow of blood through kidneys whose capillary bed has been narrowed to a greater or less degree by the interstitial cirrhosis. The cirrhotic kidney, according to this hypothesis, forms an obstacle to the normal flow of blood, a partial barrier which can be overcome only by a more powerful circulatory pressure. This very plausible explanation which refers the characteristic triad of circulatory signs to a common cause has, however, met with but little support from the experimental studies of the past few years.

Alwens[1] has recently attempted to verify the Traube-Cohnheim mechanical theory by subjecting the kidneys

1. Deutsch. Arch. f. klin. Med., xcviii, 137.

to an external pressure sufficient partially to obstruct the flow of blood. He used for this purpose oncometers, measuring the pressure applied by a manometer and the rate of flow in the renal veins. Only an insignificant rise of the general blood pressure could be demonstrated even when the external pressure on the kidneys was sufficient completely to stop the renal circulation. It is well known that ligation of both renal arteries causes only a transient rise in blood pressure, and Pässler and Heineke,[2] who excised increasing quantities of kidney tissue in dogs, could not convince themselves that the heightened arterial tension and heart hypertrophy which they were able to produce were solely attributable to loss of kidney capillaries and not due to toxins remaining unexcreted in the blood.

Finally, the mechanical theory has been severely shaken by Jores,[3] who found in a carefully studied series of autopsies that the degree of heart hypertrophy in chronic nephritis could not be referred to the obliteration of the capillaries of the kidney, as Loeb and others have claimed. Indeed, in the red granular kidney, which is almost constantly associated with arterial hypertension and heart hypertrophy, Jores found less destruction of glomeruli than in the secondarily contracted kidney of parenchymatous nephritis, a form which not uncommonly fails to produce marked circulatory changes. The very extensive destruction of the glomeruli in amyloid kidneys was found to occasion no heart hypertrophy whatsoever.

The alternative hypothesis, which attributes the cardiac and vascular phenomena of chronic nephritis to chemical excitation of the walls of the vessels by pathologic constituents of the blood, has grown constantly in favor. The reports of Schur and Wiesel[4] are of special interest. Using the frog-pupil reaction of Ehrmann, as well as chemical tests for adrenalin, they assert that they have demonstrated the presence of adrenalin in the blood of nephritics, normal controls failing to yield the reactions. They further describe as very constant the presence of hypertrophic changes in the medulla of the adrenals of chronic nephritics. From their observations they advance the theory that the arterial hypertension of chronic nephritis is due to an excessive adrenalin formation (hyperadrenalism), the adrenal medulla being stimulated to unwonted activity in some unknown way as the result of the pathologic alterations of the kidneys.

Aschoff and Cohn[5] and Goldschmidt[6] have failed to confirm the medullary hypertrophy described by Schur and Wiesel, and it may be further objected that, in their study of adrenalin in the blood, the tests used were not specific for adrenalin.

The presence in the blood of dogs with experimentally produced nephritis of a nephrotoxic substance, which when injected into normal dogs will cause the appearance of proteins and casts in the urine, seems conclusively proved by Lindermann, Pearce[7] and others. The nature of this toxin is unknown.

From this brief review it is obvious that we are as yet far from a satisfactory explanation of the circulatory changes in chronic nephritis. It is perhaps safe to assert, however, that the current trend is toward the chemical as opposed to the mechanical explanation of the phenomena, a view in agreement with the assumption of Barker and Hanes[8] regarding the eye signs observed in nephritics.

2. Verhandl. d. deutsch. path. Gesellsch., 1905, ix, 99.
3. Verhandl. d. deutsch. path. Gesellsch., 1908, xii, 187.
4. Verhandl. d. deutsch. path. Gesellsch., 1907, xi, 175.
5. Verhandl. d. deutsch. path. Gesellsch., 1908, xii, 131.
6. Deutsch. Arch. f. klin. Med., xcix, 186.

THE APPLICATION OF IMMUNOLOGY TO BIOLOGIC PROBLEMS

Because nearly all the developments that have so far been made in the reactions of immunity have come from the laboratories of the pathologists and bacteriologists, the line of application has been chiefly toward clinical pathology, diagnosis and therapeutics, and we have largely lost sight of the fact that these reactions are fundamentally biologic phenomena. Our progress in serum pathology has undoubtedly been delayed by the tardiness of the physiologists and the biologists to enter this field, for with their different points of view they could certainly present new ideas to the pathologists concerning many of the fundamental principles of the reactions, while at the same time they would make much progress in their own problems by means of this new method of attack. The immunity reactions permit of the detection of differences in chemical structure which can be demonstrated in no other way, and by them specific chemical differences are brought out which distinguish not only between different species but also between different breeds and strains, and even between different individuals of the same strain. For the large problems of heredity and general biology how much more significant are these specific differences in the chemical constitution of the essential tissue elements than are such relatively superficial features as shape of head, limb and body, number and arrangement of scales and feathers, and distribution of various pigments in the dermal appendages, on which zoologists and biologists have based their studies in the past.

An illustration of the way in which problems of classification and of heredity may be attacked by means of the reactions of immunity is furnished by a recent investigation on "The Detection and Inheritance of Biochemical Structures," by v. Dungern and Hirschfeld.[1] These authors have undertaken to learn in what way these biochemical characteristics of protoplasm which can be demonstrated by antibody reactions are inherited, using for their investigations the agglutinins for red corpuscles of dogs. As is generally known, the rule in

7. Jour. Med. Research, 1908, xix, 2.
8. Am. Jour. Med. Sc., October, 1909.
1. Ztschr. f. Immunitätsforschung, 1910, iv, 531.

the immunity reactions is that the more closely related are the animals which furnish respectively the antibody and the antigen the less vigorous will be the antibody formation, but in spite of this fact it is nevertheless possible to secure antibody formation when the antigen is derived from closely related species, and even from different individuals of the same breed. Rabbits immunized with the blood of hares develop antibodies reacting with the blood of hares, but not with rabbit blood; Ehrlich and Morgenroth by injecting the blood of one goat into another goat caused the development of antibodies which would cause hemolysis of goat corpuscles, although not hemolyzing the corpuscles of the immunized goat; and on injecting guinea-pigs with extracts of guinea-pig testicles their serum becomes toxic for guinea-pig spermatozoa.

By immunizing a terrier and a shepherd-bitch with each other's blood, v. Dungern and Hirschfeld obtained from each animal a serum which would agglutinate strongly the corpuscles of the other, and also to greater or less degree the corpuscles of some other breeds of dogs. For example, the serum of the immunized terrier agglutinated the corpuscles of five out of ten dogs examined, including the corpuscles of a bull-dog and of some other terriers, but not the corpuscles of a St. Bernard, of a shepherd-dog, or of some other breeds. The serum of the shepherd-bitch showed similar peculiarities, agglutinating the corpuscles of but one of ten dogs of various breeds. Apparently the specificity observed in these reactions does not depend on breed or species, but on properties of individuals, since agglutination was sometimes obtained with corpuscles from dogs of the same breed as the immunized animal. By the agglutination reaction, therefore, one can only distinguish between dogs whose blood contains certain specific substances and those whose blood does not contain them, and the line will not correspond at all to the physical relationships of the animals. The two dogs were mated and four pups were obtained, whose blood reactions were tested against the blood of the parents. The blood serum of the father was found to agglutinate the corpuscles of two of the four pups, while the mother's serum agglutinated the corpuscles of one of these two, but of none of the other three pups. This last pup therefore differed from the rest of the litter in regard to the chemical composition of its corpuscles, which evidently contained substances corresponding to substances present in the corpuscles of both the father and mother; one of the other pups had corpuscles resembling those of the mother alone, since they react only with the serum of the father, while the corpuscles of the two remaining pups are probably different from the corpuscles of both parents, since they react with the serum of neither. By other immunization experiments these conclusions were further established.

From these preliminary observations it seems demonstrated that the chemical structure of the red cells of different dogs is not the same, and this is the case even when there are no gross anatomic differences between the animals. Also it is shown that these biochemical properties are inherited in various ways, which will need to be established by extensive experiments in order that the underlying laws of the inheritance of chemical characteristics may be successfully formulated. For example, the pairing of animals with corpuscles having similar biochemical structure must be compared as to its effect on the offspring with the results of mating animals with unlike corpuscles, and these processes will need to be followed out for generations. Such experiments open an entirely new and fundamentally important field of general biology, the exploration of which undoubtedly will add fully as much to our understanding of the immunity reactions as they will contribute to biologic research.

POLYPHARMACY AND THE PHARMACOPEIA

The useless combination of a large number of drugs in a single preparation has been justly condemned. This practice was formerly much more in vogue among physicians than at present, but it is still recognized officially in the complex mixtures of the Pharmacopeia. The Council on Pharmacy and Chemistry has adopted a rule against the acceptance of mixtures containing an excessive number of ingredients. In the application of this rule the Council is likely to find itself greatly embarrassed by the fact that the Pharmacopeia contains many preparations in which the number of ingredients reaches a degree properly called excessive, nearly as great as in many of the objectionable proprietary mixtures. Thus liquor antisepticus has eight ingredients, mistura glycyrrhizæ composita seven (calling tinctura opii camphorata one, although it contains five ingredients), compound cathartic pills seven, vegetable cathartic pills nine, and compound syrup of hypophosphites nine. The National Formulary also contains a number of preparations which are even worse examples of objectionable polypharmacy. What excuse is there for placing in an official standard such admittedly unscientific mixtures? Probably it is true that some of these preparations were introduced with the view of providing substitutes for nostrums which had become popular through extensive advertising. If so, it is all the more important that they should be eliminated. These proprietaries maintained their hold on the medical profession largely through the mystifying influence of the unusual number of ingredients in the mixtures. The manufacturer, aiming to produce a preparation that will impress and mystify the physician, and which cannot readily be imitated, introduces small and essentially inefficient quantities of several ingredients. The physician, seeing that the medicine contains among its ingredients some substance which he knows has a remedial action, naturally supposes that the other ingredients, with which he is less familiar, enhance the value of the mixture. Hence he often prescribes it without stopping to think that he is giving an insufficient dose of the

remedy he desires and without realizing that a simple solution of one, two, or possibly three ingredients in effective doses would be better. Such mixtures should be condemned rather than sanctioned by admission into our official standards, and special care should be taken that future admissions to the Pharmacopeia—and, for that matter, to the National Formulary—do not embarrass the progress of pharmaceutical reform.

Medical News

ARKANSAS

Hospital Sold.—The directors of the Physicians and Surgeons College and Hospital, Little Rock, have sold the hospital connected with the institution to Dr. E. Meek for $48,800.

State Society Meeting.—The Arkansas State Medical Society will hold its annual convention in Little Rock, May 3-6. Dr. Morgan Smith, Little Rock, is secretary of the organization.

Personal.—Dr. Ernest G. Epler, Fort Smith, has returned after a year abroad.——Dr. Thomas E. Holland, Hot Springs, announces that he has associated with him in business his son, Dr. Estill D. Holland.——The residence of Dr. William E. Hughes, Pocahontas, with almost all its contents, was destroyed by fire, February 17.——Dr. Daniel C. Carroll, Tillar, is reported to be seriously ill in Eureka Springs.

Saline County Physicians Elect.—Saline County Medical Society, at its annual meeting in Benton, February 28, elected the following officers: President, Dr. Daniel N. Fisher, Benton; vice-president, Dr. Warren Kelley, Benton; secretary-treasurer, Dr. Charles Prickett, Traskwood; delegate to the state society, Dr. J. M. Phillips, Benton, and alternate, Dr. John W. Melton, Alum. The county judge, on request of the society, appointed Dr. Daniel N. Fisher, president, and Drs. J. M. Phillips and Warren Kelley members of the board of health of Saline county, all of Benton.

CALIFORNIA

Antituberculosis Society Kirmess.—The antituberculosis society kirmess, held the first week in February for the benefit of the Alameda Society for the Study and Prevention of Tuberculosis, netted more than $5,000 for the cause.

Society Meeting.—At the annual meeting of Napa County Medical Society, held in Napa, Dr. Frank C. Newton, St. Helena, was elected president; Dr. Edwin Z. Hennessey, Napa, vice-president, and Dr. Otto T. Schulze, Napa, secretary.

News About Hospitals.—Mrs. Russell Sage has given $1,000 to the Pasadena Hospital.——A new isolation hospital is to be built and maintained for Stanford University.——The board of supervisors of San Francisco have decided that the California Women's Hospital is unfit for housing the sick and must be destroyed.——The directors of Mount Zion Hospital, San Francisco, have purchased a site for the institution for $70,000, and a modern hospital of reenforced concrete will be erected immediately. Mr. I. W. Hellman has donated $100,000 to the institution in memory of his late wife.

Personal.—Dr. J. Gordon Mackay, Truckee, was elected president of the Nevada, Placer and Eldorado Counties Medical Association, at its meeting in Auburn.——Dr. August C. Bothe has been appointed city chemist of San Francisco.——Dr. Arthur A. O'Neill, chief surgeon of the Isolation Hospital, San Francisco, has resigned.——Drs. George M. Terrell, John W. Callnon and O. E. Skoonberg have been appointed assistant surgeons of the San Francisco Emergency Hospital Service. ——Dr. Louis D. Mead has been appointed visiting physician of the San Francisco Isolation Hospital.——The board of health of San Francisco has declared the office of chief sanitary officer vacant, to become effective April 1. Dr. William C. Hassler at present holds the position.——A session of the Los Angeles County Medical Society was recently devoted to the payment of a tribute to Dr. Elizabeth A. Follansbee, Los Angeles.

COLORADO

Personal.—Dr. and Mrs. William C. Mitchell, Denver, are in California for a holiday trip.——Dr. George H. Stover, Denver, expects to leave this month for Honolulu to make a study of leprosy.

Hospital Opened.—The Childrens' Hospital Association has opened a hospital at 2221 Downing street, Denver, with accommodation for 25 patients. Provision has been made for several free beds.

Bequest for Tuberculosis Sufferers.—By the will of the late Ascher Silberstein of Texas, the National Jewish Hospital for Consumptives, Denver, and the Jewish Consumptive Relief Society, Denver, are each bequeathed $2,500.

New Sanatorium.—The Associated Danes, the amalgamated Danish societies of the United States, have perfected plans for a large sanatorium to be erected in or near Denver. The Danish Sanatorium at present in operation at Brush with a capacity for 100 patients, is inadequate to the demands.

Tuberculosis Camp Site Donated.—Mr. George J. Kindel, Denver, has donated five acres of land in Jefferson county for a tuberculosis camp to be opened in May under the auspices of the Colorado Society for the Prevention and Control of Tuberculosis. The dispensary will be under the charge of Dr. Sherman G. Bonney, Denver.

New Medical Society Organized.—Physicians of Routt county met at Steamboat Springs, February 22, and perfected a county organization, electing Dr. J. H. Cole, Yampa, president; Dr. Robert E. Jones, Steamboat Springs, vice president; Dr. Horace C. Dodge, Steamboat Springs, secretary, and Dr. Loren G. Blackmer, treasurer.

ILLINOIS

Intern Examination.—The examination for internships in the Cook County Hospital and Cook County Institutions, Dunning, was taken by 140 men and women, March 9-11.

Verdict Against Doctors.—The case of Wilhelmina Hanson versus Dr. Fletcher L. Crocker and Dr. Barratt, Pontiac, is said to have been decided in favor of the plaintiff in the sum of $6,000.

Hospital Staff Election.—At the annual meeting of the medical staff of St. Anthony's Hospital, Rock Island, March 4, Dr. Joseph P. Comegys was elected president; Dr. Frank H. First, vice-president, and Dr. Emily Wright, secretary-treasurer.

Contract Practice Discussed.—At the banquet given by the Winnebago County Medical Society, at its meeting in Rockford, Dr. Daniel R. Connell, Beloit, Wis., president of Rock County Medical Society, was the guest of honor. The subject of contract practice was fully discussed.

News About Hospitals.—It is announced that Harry M. Fisher, president of the Maimonides Kosher Hospital Association, Chicago, will erect a building for the institution to cost about $150,000.——It has been decided to increase the capacity of St. Margaret's Hospital, Spring Valley, by the erection of an additional wing. This will increase the capacity of the institution more than 65 per cent.——Sarah A. Hartwell, Elgin, has given $4,000 to the Elgin Woman's Club to maintain a free bed in Sherman Hospital.

Personal.—Dr. and Mrs. Vaclav H. Podstata, Elgin, and Dr. and Mrs. Thomas J. Watkins, Chicago, sailed for Europe March 12.——Dr. Samuel A. and Samuel L. Oren, Lewistown, have been appointed local surgeons of the Burlington System. ——Drs. Charles W. Hall and John H. Oliver have been appointed local surgeons at Kewanee for the Burlington System.——Drs. Antonio Lagorio and Camillo Volini, Chicago, previously decorated for services to their countrymen, have been advanced from the rank of knights to officers of the Order of the Crown of Italy.

KENTUCKY

Personal.—The State Board of Control has appointed Dr. Lydia Lloyd Poage, Paris, as an assistant physician at the Eastern Kentucky Hospital for the Insane, Lexington. ——Dr. John C. Vaught has been elected secretary of the Winchester Board of Health.——Drs. Carey E. Wamsley, F. A. Clark and W. A. Krieger have been appointed district physicians of Newport.

The Tuberculosis Conflict.—The tuberculosis hospital erected at Waverly Hill, six miles from Louisville, is approaching completion and will be opened formally in May.——The Louisville Antituberculosis Association has arranged with the school board to have lectures on the prevention of tuberculosis given in all of the schools.——Dr. A. M. Forster, who is in charge of the tuberculosis work in the city will soon open a tuberculosis camp where day treatment will be given to sufferers from the disease.——The Paducah Antituberculosis League has decided to establish a tent colony near the city farm.

City Hospital Bill Passes.—Without a dissentient vote, the bill enabling Louisville to erect a new city hospital, and previously passed by the senate, passed the house March

11, and now awaits the governor's signature. The bill provides for the creation of a bipartisan commission, composed of two democrats and two republicans, to be appointed at once to prepare plans for the erection of a new city hospital. The citizens will be called on November 1 to vote a bond issue of $1,000,000 to provide for its erection.——The Jefferson County Medical Society has appointed a hospital committee, composed of Drs. Henry E. Tuley, Ap Morgan Vance, Leon L. Solomon, James W. Guest, and Bernard Asman, which will urge on the mayor the appointment of Dr. Ap Morgan Vance as the medical member of the commission.

Advocates Examination of Teeth.—Dr. W. E. Grant, health officer of Louisville, has recommended to the school board that the teeth of all children be regularly examined. It is probable that senior dental students of Louisville Dental College will be utilized in this department as school inspectors.

Bill Defeated in Senate.—Senate Bill No. 66, introduced by Senator Combs, was defeated in the senate March 10. This bill carried an appropriation of $150,000 for the establishment of a medical department of the State University, two years of the course to be taken in Lexington, where the university is located, and two years in Louisville. The bill also carried an appropriation for $45,000 for maintenance. Amendments were made cutting the appropriataion to $25,000, and an annual appropriation of $25,000 for two years. Senators Burnam and Lynn, who spoke against the measure, stated that: "the consolidation of the five medical colleges of Louisville resulted in a number of men losing their positions and this bill was the outcome of the ill-feeling resulting therefrom." The bill was defeated by a vote of 18 to 14.

LOUISIANA

Sanitary Inspection Retained.—At a conference between officials of the state and the Board of Health of New Orleans, March 8, it was decided to ask the Secretary of the United States Treasury to reestablish sanitary inspection of passengers arriving in New Orleans from Central American ports, under the supervision of the U. S. P. H. and M.-H. Service.

Personal.—Dr. Junius J. Stagg, Eunice, charged with shooting Sevia Fuselier, February 26, was exonerated at the inquest two days later.——Dr. Stephen L. Powlett, mayor of Hammond, is said recently to have been convicted of unlawfully prescribing liquor and fined $100.——Dr. John P. Scott has resigned as a member of Shreveport Charity Hospital Board. ——Dr. Otis M. Patterson has been elected coroner of Bastrop.

Medical Society News.—The Orleans Parish Medical Society has had plans made for a new building on the site of its present home in Elk Place to cost $25,000. The society now owns a library worth about $60,000, and has assets amounting to $15,000.——At the annual meeting of East Baton Rouge Parish Medical Society, held January 12, the following officers were elected: President, Dr. James A. Tucker; vice-president, Dr. Philip H. Jones, and secretary-treasurer, Dr. James J. Robert, all of Baton Rouge. Resolutions of respect and condolence were adopted regarding the late Dr. William D. Harrelson, and a resolution was also adopted condemning the practice of counter prescribing, said to be prevalent in Baton Rouge, and notifying druggists that steps are being taken to accumulate evidence to prosecute such violators to the fullest extent of the law.

MARYLAND

Annual Meeting of State Society.—The annual meeting of the Medical and Chirurgical Faculty of Maryland will be held in Baltimore April 26-28. The annual oration will be delivered by Dr. Clemens von Pirquet.

The State Tuberculosis Sanatorium.—A bill was introduced in the legislature, March 8, authorizing a bond issue of $100,000 to provide additional buildings and improve the grounds of the Maryland Antituberculosis Sanatorium in Frederick county.

Medical Examiners Organize.—Life insurance examiners of Baltimore held a meeting in the hall of the Medical and Chirurgical Faculty of Maryland, March 7, organized the Baltimore Medical Examiners' Society, and elected Dr. James D. Iglehart, president; Dr. Charles E. Sadtler, vice-president, and Dr. W. Edward Magruder, secretary.

New Health Bill.—A new health bill for Washington county has been introduced in the legislature, which extends the term of office of the county health officer to two years; divides the county into fourteen sanitary districts, and provides for the appointment by the county commissioners of a sanitary officer for each district. The object of the new law is to place the responsibility for the health of the community on the community itself.

State Lunacy Bill Discussed.—The State Lunacy bill which provides for the care of insane poor by the state instead of by counties, was discussed March 9, before the finance and judiciary committee of the senate. The bill passed the house some time since and has been held by the senate. By it the Lunacy Commission is given authority to remove acute cases from the county institutions to the state hospitals, and it also requires inspection of all public and private asylums by the commissioner.

Personal.—Dr. Joshua W. Hering, Westminster, state comptroller, celebrated his seventy-seventh birthday anniversary, March 8.——At the annual meeting of the Princeton Alumni of Maryland, held in Baltimore, March 11, Dr. Hiram Woods was elected president and Dr. John M. T. Finney, a vice-president, both of Baltimore.——Drs. Thomas A. Ashby, Randolph Winslow, G. Milton Linthicum, Charles O'Donovan, all of Baltimore, and Joshua W. Hering, Westminster, are the proposed regents of the state university, the plan for which is to be presented to the legislature.

State Board of Health Demands.—The State Board of Health appeared before the committee of ways and means of the House of Delegates, March 8, to ask for an increase in the appropriations, including $1,000 a year for the publication of a monthly health bulletin; an increase from $5,000 to $10,00 to carry out the provisions of the tuberculosis law, the additional sum to be devoted largely to dissemination of prophylactics information and supplies, and $24,000 for the establishment of five bureaus, namely, communicable diseases, bacteriology, chemistry, sanitary engineering, and vital statistics. The appropriation now made to the State Board of Health of Maryland is said to be lower than any state which makes pretense of any such work.

MASSACHUSETTS

Fortune Given for Care of Teeth.—Thomas A. Forsyth, Boston, plans to give $2,000,000 for the care of the teeth of school children of the city, as a permanent foundation by which every child in the city to the age of sixteen may receive expert dental service free of charge.

Sanatorium Opened.—The State Sanatorium for Tuberculosis, Westfield, was opened for the reception of patients last month. Dr. Henry D. Chadwick, formerly of Waltham, is superintendent, and Dr. Harvey S. Wagner, formerly of Denver, assistant. The institution has accommodation for 150 patients.

New Health Officers.—Dr. Frederick F. Andrews has been elected chairman of the Revere Board of Health.——Dr. Charles A. Abbott, Andover, has been reelected a member of the local board of health.——Dr. Dean S. Luce has been elected a member of the board of health of Canton.——Dr. Osmyn Baker has been elected city physician of Northampton.

MINNESOTA

New Hospital Opens.—The new contagious disease hospital, Duluth, was opened for general use, February 14. The building was accepted February 10, after careful inspection by thirty physicians of the city.

County Health Association Organized.—Mower County Public Health Association was organized in Austin, February 7. The general work of the association is to be the study and promotion of the best possible sanitary conditions of the county and the dissemination of information regarding the prevention of disease.

New Sanatoria.—The new St. Paul Tuberculosis Sanatorium, Bass Lake, was opened January 25. The building is a two-story brick structure, with accommodation for 30 patients and necessary attendants, and has been erected at a cost of more than $10,000, collected through the efforts of the St. Paul Antituberculosis Committee. Dr. H. Longstreet Taylor is medical director of the institution.——A sanatorium is to be established at Cold Springs, near St. Cloud, at a cost of $25,000.

Personal.—Dr. James E. Moore, Minneapolis, professor of surgery in the University of Minnesota, was seriously injured, February 25, by the fall of a temporary roof of the building in which he was conducting a class in surgery. Nine students were more or less seriously injured.——The governor announces that he has decided to reappoint Dr. Henry M. Bracken, Minneapolis, a member of the State Board of Health.——Dr. Albert F. Groves, Brainerd, who has been seriously ill with rheumatism, is reported to be convalescent.

Reunions.—Three generations of physicians graduated at the University of Pennsylvania were represented at the meeting of the Northwestern Alumni Association, St. Paul, March 3.——Dr. Archa E. Wilcox, Minneapolis, was elected president of the organization and Dr. Arthur S. Hamilton, Minneapolis, secretary.——The Minnesota Wiener Medical Verein held its annual meeting in Minneapolis, February 5, and elected Dr. Charles D. Freeman, president; Dr. Paul B. Cook, vice-president, and Dr. Louis A. Nelson, secretary, all of St. Paul.

Medical Society Meetings.—At the annual business meeting of the Ramsey County Medical Society, held in St. Paul, January 31, Dr. Warren A. Dennis was elected president; Dr. James S. Gilfillan, vice-president; Dr. Frederick Leavitt, secretary-treasurer, and Dr. Alva F. Whitman, necrologist. The society has a membership of 200, and maintains a reference library of 5,000 volumes, and a working laboratory for its members.——At the annual meeting of Rice County Medical Society, held in Faribault, the following officers were elected: Dr. Arthur C. Rogers, Faribault, president; Drs. Warren Wilson, Northfield, and P. Albert Smith, Faribault, vice-presidents; Dr. Frederick U. Davis, Faribault, secretary-treasurer, and Dr. Frederick R. Huxley, Faribault, censor.——Clay-Becker County Medical Society held its annual meeting, January 31, at Moorhead and elected the following officers: President, Dr. Olaf J. Hagen, Moorhead; vice-president, Dr. Lew M. Lowe, Glyndon, and secretary-treasurer, Dr. Edgar R. Barston, Frazee.

NEW YORK

Cost of Food Affects State Hospitals.—The high price of certain foodstuffs has led the Commission in Lunacy to reduce the amounts of hams and smoked meats to about one-half the usual quantities and to substitute beef, milk and eggs to furnish an equivalent amount of nourishment.

New Legislation.—A bill has been introduced into the legislature which places cold storage warehouses under the supervision of the State Board of Health. All food must be stamped conspicuously with the date when storage began, and shall not be kept longer than six months except on special permission of the board, to which quarterly reports must be made.——Another bill includes within the definition of adulterated food, slaughtered game, animals, poultry or fowl, unless the carcass has been divested of its entire digestive tract within twelve hours after its slaughter. Any such carcass found in any refrigerator, ice chest, cooler, storage, apartment or market is to be presumed to have been slaughtered for a longer period than twelve hours.——Another bill requires the New York City Health Department during the summer months to operate hospital boats for the care of sick mothers and children.

A Tuberculosis Conference.—The New York State Charities Aid Association held a conference at Albany on March 18 and 19. This conference celebrates the beginning of a new period of constructive work by the state and local committees on the prevention of tuberculosis. The conference will be followed by sermons throughout the state on Tuberculosis Sunday, April 24, on the text "No uncared-for tuberculosis in 1915." They will emphasize the demand for a county hospital for every county and at least one visiting nurse for every city and village, a free dispensary for every city or village having a population of over 5,000, the reporting of every living case to the health authorities, and the adequate treatment of every case either at home or in a hospital. If these plans are carried out there will be in the upstate portion of New York by 1915 at least 1,500 state beds for tuberculosis, 61 county hospitals, 22 city hospitals, 85 dispensaries, and 150 visiting nurses for the care of tuberculosis cases.

State to Make War on Disease.—Called together by Dr. Eugene H. Porter, State Commissioner of Health, nearly fifty experts of the State Department of Health met in Albany March 8 to plan a definite and detailed movement throughout the state for the suppression of communicable and preventable diseases. Dr. Porter stated that they were about to district the state and to appoint competent physicians to act as sanitary inspectors over such districts under the authority of the State Department of Health. He outlined legislation which would link the local health officer through the sanitary supervisor with the central health department at Albany. Dr. William A. Howe, Phelps, detailed the method of an investigation by the sanitary supervisor of an outbreak of typhoid fever and what he could do to lessen the excessive death rate from diphtheria, scarlet fever, measles, whooping cough and tuberculosis. Meetings will be held throughout the state and everything possible will be done to put the work on sanitation on a higher plane. This is the first time that a state has entered on such a thorough-going campaign against disease.

NEW JERSEY

Antituberculosis Society Organized.—A branch of the New Jersey Association for the Prevention and Relief of Tuberculosis has been organized in Moorestown with Dr. Nathan Thorne, president; Dr. Joseph Stokes, vice-president, and Dr. Frank G. Stroud, secretary.

Surgical Dressing Maker Dies.—Robert Wood Johnson, New Brunswick, president of Messrs. Johnson and Johnson, makers of surgical dressings and organizer of the firm of Seabury and Johnson, died at his home in New Brunswick, February 7, from acute nephritis, aged 65.

Personal.—Dr. Thomas J. Smith, Bridgeton, sustained a fracture of the nose in a runaway accident recently.——Dr. Paul E. Kuhl, Trenton, has been secured to care for the diphtheria cases at the New Jersey State Epileptic Village, Skillman.——In the case of Dr. Herman A. Glatzmayer, Newark, sentenced to imprisonment for five years, and fined $1,000 for malpractice, the verdict was set aside by the supreme court, March 7. Reversal was based on exclusion, at the trial, of questions put on cross-examination, concerning alleged acts injurious to the case of the defendant.

Osteopaths Recognized.—At a meeting of the house, March 9, the Ramsey Medical Bill was passed by a vote of 44 to 10. Under this bill, there is to be added to the State Board of Medical Examiners, now composed of nine members—five regular physicians, three homeopaths, and one eclectic—a tenth member who shall be an osteopath. Osteopathy is defined in the bill as: "a system of therapeutics, which seeks to secure normal adjustment of the anatomic structures through a process of scientific manipulations, recognizing as its proper heritage the use of air, water, light, heat, proper food, exercise or other physiologic measures." The bill prescribes the qualifications of an osteopath who may be licensed and provides: "the license granted under this section shall not authorize the holder thereof to use, prescribe, administer any drug or medicine, serums, antitoxin or vaccine, practice surgery, attend any contagious or infectious disease, or sign any birth or death certificate, and this together with the fact that it is issued without examination, shall be so stated in the said license." The advocates of osteopathy, it is said, are dissatisfied with the measure and their supporters voted in the negative.

PENNSYLVANIA

Personal.—Dr. Katharine W. Ulrich, Chester, a member of the staff of Chester Hospital, is reported to be ill with pneumonia.——The local board of health of Chambersburg has reorganized by reelecting Dr. Johnston McLanahan, president, and Dr. Harry M. Miley, secretary.

Railroad Relief Fund Report.—The Lehigh Valley Railroad announces that $85,689.30 was paid from the relief fund in the year 1909 for the benefit of the company's employees, leaving a balance at the end of the year of $28,099.91. In the 32 years of this fund's existence, the contributions have amounted to $1,485,973.02. Of this, the employees have paid half and the company half.

Philadelphia

National Meeting on Alcohol and Drugs.—The American Association for the Study of Alcohol and Other Drug Narcotics will meet in Philadelphia, April 6 and 7. Arrangements for the sessions are in charge of Dr. Alfred Gordon, 1430 Pine street.

Personal.—Dr. Jacob Solis Cohen was tendered a testimonial dinner by the section on laryngology of the College of Physicians and his former and present assistants, March 15, in honor of his having completed half a century of active practice.——Dr. S. Hamill Horne sailed from San Francisco, March 8, on a tour around the world.——Dr. Ernest F. Apeldorn was thrown from a wagon, March 7, and sustained a fracture of the hand and concussion of the brain.——Dr. Gennaro Spagano was exonerated by Common Pleas Court No. 5, February 18, in a suit brought against him for alleged malpractice.

TENNESSEE

New Superintendent for State Asylum.—At a meeting of the trustees of the Tennessee Central Hospital for the Insane, Nashville, March 4, Dr. Albert E. Douglas, for nine years assistant superintendent, was appointed to fill the vacancy in the superintendency of the institution, caused by the death of Dr. John A. Beauchamp.

Hospital News.—St. Joseph Hospital, Memphis, during the twenty years of its existence, has ministered to 39,656 sick people, of whom 22,228 were charity patients. Dr. Benjamin F. Turner is president of the staff of the hospital.——A branch

isolation hospital to cost about $2,500 is to be established in connection with the Knoxville General Hospital. The building is to be maintained for the exclusive occupancy of patients suffering from communicable diseases.

WISCONSIN

Building for Doctors.—Plans have been made for a four-story building at Mason street and Broadway, Milwaukee, to be used as an office building for physicians.

Society Meeting.—At the annual meeting of Outagamie County Medical Society, held in Appleton, March 3, Dr. Manly J. Sanborn was elected president; Dr. James V. Canavan, vice-president; Dr. Frank P. Doharty, secretary-treasurer, and Dr. George A. Ritchie, censor, all of Appleton.

Resolution Against Contract Practice.—Rock County Medical Association, at its meeting in Janesville, February 25, adopted a resolution forbidding members of the association to continue or to undertake contract lodge practice. Those members of the society who were not present at the meeting are to be notified not to take up the practice or to discontinue it within sixty days.

GENERAL NEWS AND COMMENT

Personal.—The Mary Kingsley Medal has been awarded to Walter Wyman, supervising surgeon-general U. S. P. H. and M.-H. Service, for the organization he has given to the service under him and for the manner in which he has also supported scientific principles in public sanitation.

The Isolation of Polonium.—Mme. Curie, who in conjunction with her late husband, M. Pierre Curie, discovered radium and polonium, has succeeded, with the cooperation of M. Debierne, in isolating a milligram of polonium from pitchblende. According to *Science*, several tons of the latter mineral treated with hydrochloric acid were required to produce this amount of polonium. While its radio-activity is greatly in excess of that of radium, it disintegrates and disappears with far greater rapidity, losing 50 per cent. of its weight in 140 days. It would require a like quantity of radium a thousand years to disappear. Polonium decomposes organic bodies with great rapidity, and when placed in such a refractory substance as a quartz vase the vessel is soon cracked. In the process of disintegration helium and another substance, supposed to be lead, are produced. The determination of this latter substance will also establish the fact that polonium is not an elementary body, as formerly believed.

Meeting of Association of Medical Colleges.—The twentieth annual session of the Association of American Medical Colleges will be held in the hall of the Medical and Chirurgical Faculty of Maryland, Baltimore, Monday and Tuesday, March 21-22, 1910. The Monday morning session will be taken up by reports of officers and special committees. Monday afternoon, the following addresses will be given:

"The Medical Curriculum," Dr. William H. Welch, Professor of Pathology, Johns Hopkins University, Baltimore.
"The Five Year Course," Dr. John W. Scane, Registrar, McGill University, Montreal, Canada.
"The Concentration Plan of Teaching," Dr. H. A. Christian, Dean, Harvard Medical School, Boston.
"The Teaching of Ophthalmoscopy," Dr. A. R. Baker, Professor of Ophthalmology, Cleveland College of Physicians and Surgeons.

Monday evening the address of welcome will be given by Dr. G. Milton Linthicum, president of the Medical and Chirurgical Faculty of Maryland, the response to which will be given by Dr. J. A. Witherspoon, professor of medicine, Vanderbilt University, Nashville, and a member of the Council on Medical Education of the American Medical Association. This will be followed by the address of the president of the association, Dr. George Howard Hoxie, Kansas City, Mo., dean of the School of Medicine of the University of Kansas. Tuesday morning, besides the reports of the committees, there will be addresses by Dr. Herbert A. Harland, president of the Maryland Board of Medical Examiners, on "State Boards and High Entrance Requirements," this to be followed by an address by Mr. Abraham Flexner of the Carnegie Foundation for the Advancement of Teaching, on "Medical Standards." Tuesday afternoon will be devoted to business and to the election of officers. A large and interesting meeting is expected.

CANADA

McGill Reunion.—A reunion of all graduates in medicine of McGill University, Montreal, is planned for the coming convocation, June 6 and 7.

Rabies in Ontario.—On account of the prevalence of rabies in Ontario, a deputation from the Academy of Medicine, of Windsor, asked the provincial cabinet recently that a Pasteur institute be established in Toronto in connection with the university.

Typhoid Fever in Montreal.—The prevalence of typhoid fever in Montreal has moved the health committee to recommend the city council to vote $15,000 for the maintenance of poor typhoid fever patients in the emergency hospital and other institutions in the city. Archbishop Bruchesi announces that there are 300 beds available in the institutions under his care.

News About Sanatoria.—The new Provincial Tuberculosis Sanatorium, Ottawa, which was erected by the antituberculosis association at a cost of $50,000, was formally opened by Earl Gray, governor-general of Canada, February 15.——The new Tuberculosis Sanatorium of Manitoba, at Ninette, was opened March 1. It has a capacity of 75 patients and is under the superintendency of Dr. Stewart.

Hospital News.—By the will of the late Mr. Charles Cockshutt, Toronto, $10,000 is devised to the Hospital for Sick Children in that city.——The Montreal General Hospital proposes an extension which will accommodate 38 more private patients and 84 more ward patients. A new operating theater is also contemplated.——The Ontario government has set aside a grant of $5,000 to establish a hospital for New Ontario.

University News.—With the commencement of Michaelmas term, a scholarship for research work in surgery, known as the George Peters Memorial Scholarship, will be founded in connection with the Medical Faculty of the University of Toronto, in memory of the late Dr. George A. Peters, sometime professor of surgery in the institution.——The executors of the estate of the late Mr. Hart A. Massey have made a gift to the University of Toronto of buildings for the students' Young Men's Christian Association, a larger gymnasium, and the Students' Union.

Personal.—Drs. Charles F. Martin and Philip Burnett, Montreal, have gone to Europe.——Drs. J. Algernon Temple, Frederick LeM. Grasett, John L. Davison, Luke Teskey, and W. Theophilus Stuart have retired from the active teaching of medicine in the Medical Department of Toronto University.——Dr. Arthur F. Miller, formerly of Saranac, N. Y., has been appointed resident superintendent of Kentville Sanatorium for Tuberculosis in Nova Scotia.——Dr. and Mrs. John Bell, New Glasgow, N. S., sailed for Europe, January 29.——Dr. Herbert Young, Prince Rupert, B. C., has been appointed coroner for the province.——Dr. James A. McMahon has been appointed a member of the board of health of St. Catherines, Ont.——Dr. M. Capps Costello, Arnprior, Ont., has returned from Europe.——Sadik Bey, charged by the registrar of the College of Physicians and Surgeons of the Province of Quebec with practicing medicine illegally, was acquitted February 16.

Medical Societies Meet.—Lambton County (Ont.) Medical Association, at its annual meeting, February 16, elected Dr. Robert M. Calder, Petrolea, president; Dr. Robert G. McDonald, Sarnia, vice-president, and Dr. Robert G. C. Kelly, Watford, secretary-treasurer.——At a meeting of the local practitioners of Prince Rupert, B. C., a medical association was formed and the following officers were elected: President, Dr. J. O. Reddie; vice-president, Dr. Henry E. Tremayne, and treasurer, Dr. Neil M. McNeil.——The annual meeting and banquet of the alumni of Manitoba Medical College was held in Winnipeg, February 16. Dr. Henry H. Chown, Winnipeg, was the guest of honor, and Dr. Alexander J. Douglas, Winnipeg, presided. Dr. Edward W. Montgomery, Winnipeg, was elected president; Dr. James W. Armstrong, Gladstone, vice-president, and Dr. Campbell MacArthur, secretary-treasurer.——At the March meeting of the West Toronto District Doctors' Association, the society formally announced that it favored the principle of representation on the council of only those universities which had teaching medical faculties, namely Toronto, Queen's, and London; that representation should be reduced from seventeen territorial to nine, and the homeopaths from five to two, and also that each year a full and correct statement of the finances of the council should be published.——The Medical Association of Brandon (Man.), at its annual meeting, elected Dr. John S. Matheson, president; Dr. E. Charles Beer, vice-president, and Dr. J. G. B. Lynch, secretary, all of Brandon.——At a meeting of the Medical Association of Military District No. 8, N. B., held in St. John, a branch of the Association of Medical Officers of the Militia of Canada was formed, a constitution adopted and the following officers elected: President, Major Walker; vice-president, Captain Stewart S. Skinner, St. John; and secretary-treasurer, Captain Steeves.

FOREIGN

Recent English Deaths.—Among recent deaths in England are those of Henry John Manning, M.R.C.S., England, 1866; honorary secretary-treasurer of the Southern Branch of the British Medical Association, and superintendent and licensee of Lavestock House Asylum, Salisbury, on February 20, after a long and painful illness, aged 74; of John William Taylor, F.R.C.S., England, 1877; professor of gynecology in the University of Birmingham, and formerly chief assistant to Mr. Lawson Tait, who delivered the Engleby Lectures in 1898, was president of the British Gynecological Society in 1904, and died February 26 from chronic heart disease, aged 58; and of Surgeon-Major-General George Landford Hinde, C. B., who entered the Royal Army, Medical Corps, in 1855, and retired in 1892 after having served in the Crimean and first Boer wars, and with the Soudan expedition.

Professor Jonnesco at Home.—The following item appeared in the *Frankfurter Zeitung*, Feb. 25, 1910: "A MEDICAL QUARREL IN BUCHAREST.—The following letter has reached us from Bucharest: Sunday evening Prof. Thomas Jonnesco, dean of the medical faculty at the university of Bucharest, returned from a long foreign tour. He was met at the station by almost all the physicians of the city and the medical students who, together with a large crowd of people, had gathered to greet the clinician. Prof. Thomas Jonnesco had visited England and America on the invitation of the English and American universities to demonstrate his new method of anesthesia by injection of a stovain-strychnin mixture into the spinal canal (a method recently described in the *Frankfurter Zeitung*). The operations of Professor Jonnesco which were everywhere well received and very extensively described by all the English and American journals, have not been allowed to rest by a number of envious rivals. A bitter strife has developed between the adherents of the dean and some opponents, not, however, regarding the value of the method itself, but these physicians who are, however, in the minority, claimed that in his demonstrations of his method as carried out in foreign countries, Professor Jonnesco had entered the field of quackery and had brought disgrace on the entire Roumanian nation. In large placards and circulars it was demanded that Professor Jonnesco resign his place as dean and as member of the medical faculty and even the government was incited against the scientist. Luckily, however, these malicious attacks have had little effect for it was soon recognized that their real aim was directed against Thomas Jonnesco, not as a scientist, but as a brother of the former minister of finance, Take Jonnesco, with the purpose of injuring the latter who is the present leader of the conservative democratic party."

LONDON LETTER

(*From Our Regular Correspondent*)

LONDON, March 5, 1910.

The Beit Fellowships for Medical Research

The munificent gift of a million dollars for the foundation of fellowships for medical research by the Beit brothers was described in a recent letter (THE JOURNAL, Jan. 15, 1910, p. 217). The following fellows have been appointed: 1. George Harold Drew, who has made researches on the parasitic and other diseases of fish, the reproduction of laminaria, and marine bacteriology. He is authorized to make researches on the zoologic distribution of cancer, and a systematic experimental study on the mode of origin of neoplasms. These researches will be carried on at the Imperial Cancer Research Laboratories, London; the zoologic station, Naples; the marine biologic station, Plymouth; and the zoologic station, Roscoff, France. 2. Frederick W. Edridge-Green, a well-known authority on color vision, and the inventor of the color-perception spectrometer. He is authorized to investigate various problems in connection with vision and color vision especially in relation to the correct reading of signals on land and sea. 3. Edward Hindle, instructor in parasitology, University of Chicago, who is authorized to make researches into the morphology and treatment of protozoic blood parasites, especially *Spirochæta duttoni* and trypanosomiasis, at the London School of Tropical Medicine and in Uganda. 4. Thomas Lewis, physician to out-patients, City of London Hospital, the author of numerous papers on a new method of investigating the heart; is authorized to make researches on the mechanism of irregularities of the heart. 5. G. C. McKay Mathison, a writer on the estimation of phosphorus and the output of organic phosphates in the urine, and the nervous control of respiration, is authorized to make researches on the nervous control of respiration, the effect on respiration of changes in the chemical composition of the blood, and the mechanism of biliary secretion and its general effect in digestive processes. 6. Otto May, physician to out-patients, Evelina Hospital, London, who is authorized to make clinical and experimental researches on lesions of peripheral nerves. 7. Edward Mellanby, demonstrator of physiology, St. Thomas' Hospital, who is authorized to make researches on the mode of action of caffein, theobromin and allied substances on the muscular and nervous systems. 8. Sydney Russ, demonstrator in physics at the Victoria University, Manchester, who is authorized to make researches on the association of radioactivity with cancer. 9. Ida Smedley, assistant lecturer on chemistry, Victoria University, who is authorized to make researches on the processes involved in the formation of fat in the organism. It is evident that the researchers have been well selected, and that their subjects are of the first importance.

The Responsibility of Hospitals

A curious case has been decided in the Glasgow sheriff court. In the winter of 1907, a man, suffering from scarlet fever, was removed to a fever hospital belonging to the Glasgow corporation and died there. His widow sued the corporation for £5,000 for failure to take proper care of her husband in removing him to the hospital and while there in allowing him, when delirious from fever, to escape into the grounds and get a chill, which led to his death. The sheriff gave judgment against the widow on the following grounds: As regards the removal, her point was that the nurse in charge of the ambulance allowed the patient to walk to it instead of having him carried. The sheriff found that the patient elected to walk and that there was no proof that he suffered from doing so. The main issue, however, was that the defendants were negligent in allowing the patient while delirious to escape. On the night in question the ward was admittedly abnormally full, containing 32 patients, of whom only 4 were adults, the others being boys. More than half of the patients were convalescent and needed no attention during the night. Under ordinary circumstances, the one staff nurse was considered sufficient, but on this night there were, in addition, a night sister within call, a male attendant watching this particular man, and another available in case of emergency. The resident physician was under the same roof and also within call. The patient was delirious, imagined he was ill-treated, and got out of bed more than once. At 11:30 he got up and evaded the male attendant and nurse. He ran about the ward a little and then suddenly broke a window and escaped into the grounds. He was captured, brought back and put into a restraining sheet. He died four hours later. The sheriff found that the attendance provided was sufficient and that there the responsibility of the defendants ended. The attendants had not failed in their duty, and there was no evidence that the use of the restraining sheet was improper. He did not consider that either the physician or the male attendant committed any error of judgment, and even if it were proved that the physician committed an error of judgment that was no liability of the defendants.

PARIS LETTER

(*From Our Regular Correspondent*)

PARIS, March 4, 1910.

Two New Professors at the College of Medicine

It will be remembered that there were two vacant chairs at the Paris college of medicine, one, that of internal pathology, made vacant by the death of Professor Brissaud, the other, that of general pathology and therapeutics, made vacant by the resignation of Professor Bouchard (THE JOURNAL, Jan. 15, 1910, liv, 217, and Feb. 5, 1910, liv, 478). The minister of public instruction has just appointed Dr. Fernand Widal to the first chair and Dr. C. Achard to the second. The first was proposed to the minister by the professors of the college unanimously and the second by 43 out of 44 votes. Such unanimity is extremely rare at the college of medicine and it is altogether to the honor of the two new professors.

Dr. Widal, *agrégé*, member of the Academy of Medicine and of the Superior Council of Hygiene of France, physician of the Cochin Hospital, thus becomes the youngest professor at the college. He is especially well-known by the method of serodiagnosis of typhoid fever which bears his name, as well as by his works on the cure of insufficiency of chlorids in diseases of the kidneys.

Dr. Achard, *agrégé*, physician of the Neckar Hospital, is an investigator whose merit is equaled only by his modesty. His works deal with the most varied subjects, especially with the diseases of the kidneys and of the blood. He has written, in

collaboration with Professor Lannelongue, some interesting essays on serotherapy of tuberculosis. In 1901, while taking the place of Professor Bouchard at the college of medicine, he gave a series of instructive lessons on the new procedures of clinical exploration, which have been published. With M. Debove, he edited a text-book of medicine in nine volumes, and more recently, with MM. Debove and Castaigne, he edited a manual of the diseases of the alimentary canal and a manual of the diseases of the kidneys and the suprarenal capsules.

Action Against Fraud

The general confederation of wine-growers of France in a letter to M. Paul Bolo, general delegate of the White Cross of Geneva (THE JOURNAL, Oct. 9, 1909, liii, 1200) announces that it has just undertaken to unite the various agricultural societies for the purpose of fighting fraud, and it requests support of the White Cross in this work.

Personal

In its session of March 1, the Paris Academy of Medicine elected Dr. D'Espine of Geneva and Sir Victor Horsley of London, foreign associates.

The MacLaughlin Electric Belt in the Courts

On the initiative of three medical organizations, the *Syndicat des médecins de la Seine*, *the Syndicat médical de Paris*, and the *Syndicat général des médecins français électrologistes et radiologistes*, the directors and physicians of a widely advertised concern, the "McLaughlin Institute," which made extravagant claims for a belt called "Electro-Vigor," have finally been prosecuted for illegal practice of medicine and for fraud. It was shown that "Dr." MacLaughlin had no medical diploma from any country. The experts decided that the "Electro-Vigor" belt was a useless and harmful piece of apparatus. Nevertheless the court did not uphold the charge of fraud but only the charge of illegal practice of medicine. The three directors of the institute, Zook, Cooly and Cooper were condemned to pay fines of $100 (500 francs) and Drs. Dumoret and Ficatier, the first of whom had already been cited before the court, were sentenced to pay the same fine for complicity. The three organizations which were civil parties to the suit had asked $10,000 (50,000 francs) damages, but were awarded only $200 each, because, according to the court, the injury to their interests was not as great as claimed, since the greater number of the patients thought of buying belts only after having exhausted other means and consulted one or more physicians. [EDITOR'S NOTE: In THE JOURNAL, Feb. 26, 1910, page 713, it was noted that a fraud order had been issued by the United States Postoffice Department against the "Dr. Hall Electro-Vigor Company"—a name under which, we are informed, the McLaughlin people do business in this country.]

BERLIN LETTER

(*From Our Regular Correspondent*)

BERLIN, March 3, 1910.

Personal

Professor Kroemer, assistant to Professor Bumm at Berlin, has been appointed director of the university gynecologic clinic at Griefswald.——Dr. L. Seitz, privat-docent at Munich, has been called to the directorship of the university gynecologic clinic at Erlangen. These appointments fill the chairs left vacant by Pfannenstiel and Runge.——Professor Leber, the distinguished Heidelberg ophthalmologist, will celebrate his seventieth birthday, February 28.——Professor Bäumler of Freiburg celebrated the fiftieth anniversary of his doctorate February 18.

Age Limit for University Professors

The question of age limit for a university professor, which I touched on in my previous letter on the occasion of the announcement of Olshausen's resignation, will probably become a matter of a general regulation in Germany. Already in the last few years the opinion has been expressed that a similar regulation of the teaching of university professors should be established as is the case in Austria and to some extent in Italy. The universities have so far refrained from action in this matter so that the government has seen no occasion for a change in the legal status. Now, however, the medical faculty at Freiburg has itself made the proposal to the government of Baden to introduce an age limit at first for those in charge of the clinics. It is uncertain but not improbable that the Baden government will put in force the proposal of the Freiburg faculty

International Congress for the Hygiene of Infancy

The third International Congress for Infant Hygiene will occur in Berlin in 1911. A few days ago the German committee on organization for this congress was established. Bumm, the president of the imperial health office, who rendered very good service in a similar capacity for the Berlin International Congress on Hygiene, was chosen Chairman and Privy Counsellor; Dietrich and Heubner were chosen as his representatives. Professor Keller, the director of the Augusta Victoria institute to restrict infant mortality, was elected general secretary. The empress will probably assume the protectorate of the congress.

The Use of Beer in Greater Berlin

The use of beer in Greater Berlin is decreasing from year to year; especially is the so-called "genuine beer" (*Echtes Bier*) from Bavaria and Bohemia drunk to a less extent. The latter circumstance shows that the abstinence movement has gained a greater foothold among the better classes of the population than among those who drink the cheap domestic beer. Until the year 1906 the importation of beer into Berlin continually increased, but since then the importation has fallen off from year to year. In 1906 it amounted to about 99,000 hogsheads of 1,000 kilograms (about 100,000,000 liters, 25,000,000 gallons); in 1907 about 95,000 hogsheads; in 1908, 91,000.

Statistics of the State Supported Compulsory Insurance

From the business report of the imperial insurance office for 1909, just appeared, the following items are of general interest: About 27,000,000 persons were insured in Germany against accidents and 653,000 accidents were reported; $15,000,000 (62,000,000 marks) were paid as compensation. In invalid insurance up to the end of 1909 2,300,000 invalid, sickness, and old age pensions were granted. In 1909 about $46,000,000 were paid. The entire income from contributions of the insured amounted to about $45,000,000; 2,828 persons were cared for in the homes for the disabled and infirm and in the hospitals. Up to Dec. 31, 1909, there had been loaned for public purposes from the funds of the insurance societies for the building of workingmen's homes $67,000,000 and for the building of hospitals and convalescence homes as well as for other philanthropic purposes $94,000,000.

Treatment of Diffuse Peritonitis

At the last session of the independent surgical society of this city (*Freie Vereinigung der Chirurgen*) there occurred, following an address by the well known Professor Rotter, an interesting debate on the treatment of diffuse peritonitis. Rotter distinguished mild diffuse peritonitis, in which the lower abdomen contained an abundant purulent exudate, while the upper part of the abdomen was only slightly affected and severe diffuse peritonitis in which the entire cavity of the peritoneum is filled with pus. In each of the two groups an early and a late stage should be especially considered. Among the mild cases Rotter had treated from 1907 to 1909 33 cases with no mortality and in the late stage 17 cases with a mortality of 11 per cent. In the severe form the mortality in the early stage fell from 17 per cent. in 1905-06 to 10 per cent. in 1909. Fifty-eight cases in the late stage were operated on in 1905-06 with a mortality of 77 per cent., in 1907 and 1908, 72 cases with 41 per cent. mortality and in 1909 30 cases with 50 per cent. mortality. Rotter finds the reason for improvement in the death rate in the improvement of operative technic and in the change of indication. After 1907 the mild cases of diffuse peritonitis in the late stage were subjected to operation. In most cases Rotter wiped the cavity dry and more rarely irrigated, but as he has found that the irrigated cases less frequently show secondary abscesses he has again resorted to the irrigation method. At any rate he regards irrigation as the more thorough method. He has observed no essential improvement of the results from drainage.

Professor Körte emphasized the fact it was difficult to decide whether or not an individual case should be included in the class of diffuse purulent peritonitis. The wider the limits are extended the more favorable the results. Early operation is of great importance in all forms of peritonitis; this is seen most plainly in appendicitis. In this disease those operated on the first and second days showed a mortality of 21.5 per cent. and those operated on after the third day gave a mortality of 57 per cent. In 10 cases of perforation of the stomach with operation after the first day, only a single patient recovered, but of 38 operations within the first twenty hours nearly three-fourths recovered. The intensity of the infection is of very great significance for the result of treatment. The worst form

is that in which there is no formation of a purulent exudate but merely a clouding of the serous membrane with precipitation of fibrin. In these cases operation is very seldom of any avail. The putrid ichorous exudates are much less dangerous. Körte considers irrigation of the peritoneal cavity as the better procedure. Thorough irrigation with hot salt solution cleanses the peritoneal cavity with least damage, exercises a stimulating influence and arouses the activity of the intestine. It is important that a free outflow be provided for the liquid in irrigation. The peritoneal incision must be large enough to give a good view. He has almost always introduced drainage in appendicitis. It is a matter of indifference whether a rubber or glass drain is used. In perforation of the stomach he has lately regularly closed the abdomen after thorough irrigation. He has departed from the principle of operating on every case of peritonitis received. He operates only when a successful cure is still possible. Non-puerperal peritonitis arising from the female pelvic organs recovers relatively often of itself, so that Körte operates only in exceptional cases. Puerperal peritonitis affords a very unfavorable prognosis for operation.

According to the report of Professor Neumann, director of the surgical section of the municipal hospital at Friederichshain, the mortality of peritonitis operations made by him has decreased from 72 per cent. in 1903 to 23 per cent. in 1909. He also is an adherent of the irrigation method.

Professor Koblanck, head of the gynecologic section of the Rudolf Virchow hospital, has operated in 22 cases of diffuse puerperal peritonitis, with only two recoveries. Whether the sexual organs shall be extirpated at the operation is to be decided by the general condition and by the nature of the affection. He also advocates irrigation with sodium chlorid. The severity of puerperal peritonitis depends on several factors: First, it is often due to the most toxic germs, the hemolytic streptococci. Second, the inflammation spreading from the uterus is never limited to the peritoneum but also affects other tissues (connective tissue, vessels, etc.), and, thirdly, there are usually complications in distant organs.

Professor Borchardt, surgeon at the Rudolf Virchow hospital, saw much worse results by the dry method than by the irrigation method in Bergmann's clinic, where he was formerly assistant. He uses for irrigation a normal salt solution heated to 40 C. until the water runs away clear, using sometimes as much as 40 liters. In very virulent cases he pours into the peritoneal cavity after the irrigation 1 to 2 bottles of Hoechst's streptococcic serum. While he has never seen any indisputable benefit from this remedy, it has never done any harm. As a rule he drains.

Abuses in the Manufacture of Medicine

The abuses in the manufacture of medicines, existing in almost all civilized countries, which consist especially in the sale under false representations of medicines compounded by unreliable manufacturers, are attributed by Professor Thoms, the director of the pharmaceutical institute of the Berlin University, in a recent article, to the fact that physicians are forgetting more and more how to write prescriptions and content themselves with ordering ready prepared remedies which are furnished by the manufacturers. In his opinion this practice constitutes a danger for the future of the medical profession. The more the physician neglects to combine the simple articles of the materia medica in his remedies and the more he makes use of ready prepared compounds in his prescriptions, the less the public will employ physicians and the more they will resort to self-medication which is made extraordinarily easy by the preparations furnished by the manufacturer, already put up, and provided with directions for use. The practicing physician should cooperate in the effort to restrain this commercial excrescence on the drug business.

Fourth International Congress for the Care of the Insane

There will convene in Berlin from Oct. 3 to Oct. 7, 1910, in the house of delegates (*Haus der Abgeordneten*), the fourth international congress for the care of the insane; the meeting has been arranged by the German society for psychiatry. The congress is not exclusively concerned with the questions and problems of the temporary treatment and provision for insane patients but will take up all investigations, regulations, and arrangements which serve for the protection of mental health in all respects. For this reason the social defects and hygienic errors which are injurious to intellectual life, the origin of mental disease from the earliest childhood and its greatest possible prevention will form subjects of discussion. The remedies for abnormal psychic conditions, the treatment both in and out of asylums, the systematic care in families, employment and relief of patients and their families, the determination of their legal relations, and their assistance and care after asylum treatment will be investigated. The education and protection of youthful psychopaths and imperfectly developed individuals will be established on the basis of scientific experience. There will be combined with the congress an exhibition of methods for the care of insane and nervous patients which will give a complete exhibition of the progress made in this field in Germany in the last three decades, and a view of the arrangements which are in use in other civilized countries. Most of the German authorities and societies have already signified their cooperation so that the exhibition promises to be very instructive.

The Action of Diphtheria Antitoxin

A remarkable evidence of the critical spirit of physicians and of their skepticism in regard to therapeutics is shown by the fact that even to-day, nearly twenty years after the introduction of diphtheria antitoxin, a debate in regard to its efficiency can be held in which there are many expressions of doubt.

A short time ago there occurred in the Hamburg medical society a discussion on this subject which continued through several sessions and which is of general interest. The reason for the debate is that there is now in Hamburg a severe epidemic of diphtheria, characterized by its extent, the large number of adults attacked, by intense symptoms in the throat and frequent involvement of the nose, a frequent hemorrhagic tendency, many late heart lesions, a high infectiousness for physicians and nurses, a marked tendency to relapses and a higher death rate. The hospital physician, Dr. Rumpel, was of the opinion that unexceptionable statistical evidence of the absolute efficiency of antitoxin has not yet been produced. The very severe epidemic in Hamburg toward the end of the 80's showed a mortality of 16.9 per cent., while that of the present epidemic is 12.3 per cent. It is interesting to compare the year 1893 (before antitoxin treatment) with 2,712 cases and 411 deaths, that is, 15.2 per cent., and 1909 (to the end of October) with 2,167 cases and 267 deaths, that is, 12.2 per cent. It is certain that with the present prevailing bacteriologic diagnosis of diphtheria, more mild cases are included than was the case in 1893.

Rumpel presented a compilation of the percentage death rates in diphtheria since 1880. The first curve represented the mortality rate of the Eppendorf hospital in which since 1894, nearly all and since 1899 all the patients have been injected; the second curve, that of the city (outside the hospital) in which antitoxin was given later and only partially, and, third, that of the country district in which the injections were made still later and less frequently. All three curves showed an identical sharp fall in 1894 and a renewed rise at the present time. If the statistics of the cases in the earliest stages and of the most favorable character are to be cited as evidence of the activity of the serum, it may be objected that with other patients also the mortality is less the earlier the treatment is instituted. Among those admitted to the hospital on the first day of the disease, there is found the great number of mild and brief cases which influence the statistics favorably. Those admitted on the third day or later do not include such cases because the disease has already run its course. To this must be added the fact that a patient still infectious on the fourth day with a bad prognosis, will more readily be sent to the hospital by the physician and relatives than one in whom the prognosis is evidently good. Rumpel distinctly admits the temporary favorable influence of the injection on the local process. If, in spite of this, the hospital mortality according to his statements is not materially diminished by the antitoxin, the explanation is found in the fact that many of those who are tided over the acute infectious stage with the help of the serum, succumb to later occurring complications, especially heart paralysis.

In opposition to Rumpel and some other physicians, particularly of the older school, Professor Lenhartz took a decided stand in favor of the importance of diphtheria antitoxin. Both on the ground of his own experience of many years and of the diphtheria conditions which had been observed in the last year in the Hamburg-Eppendorf hospital he would not neglect the use of antitoxin in any case of diphtheria. As has always been emphasized, the timely administration is very important for its successful action. In marked contrast with the high mortality of those cases which entered the hospital from the city are the results in cases of infection acquired in the hospital itself. In the Eppendorf hospital 54 patients and employees were taken with diphtheria, a part of whom had the disease severely; only 2 died, children of one and two years of age, both of whom were admitted with bronchopneumonia and were in a very bad general condition. All the other patients recov-

ered, but all had received an injection of antitoxin in the first twenty-four hours. In therapy Lenhartz advises not to give large doses of the serum; children and adults should commonly receive in the first twenty-four hours only 600 to 1,000 units and later, according to the severity of the case, 1,000 to 1,500 units.

Professor Deneke demonstrated the activity of antitoxin from the collective statistics of Hamburg. According to a report of the health office, the mortality before the introduction of antitoxin (1872 to 1894) varied between 12.4 and 19.6 per cent. and after the introduction of the serum (1895 to 1908) between 6.1 and 10.1 per cent., that is, the highest mortality of the antitoxin period is 2.3 per cent. below the lowest mortality of the ante-serum period. The average mortality has been reduced by one-half since the introduction of antitoxin. These results obtained from very large figures are, in my opinion, not to be invalidated by the statement of Rumpel that since the introduction of the bacteriologic method of diagnosis many mild cases are included. Deneke considers the experience of individual physicians as still more convincing than the statistics. "Previously we had the feeling of helplessness against the spread of the disease, but since the introduction of antitoxin, the disease is under our control if we are called on for treatment early enough."

The statistics introduced by Professor Deyke produced a distinct impression as he included in his tables all of the material published in the literature accessible to him. According to these, in about 80,000 antitoxin cases there was a total mortality of 15.2 per cent.; 4.3 per cent. on the first day; 7.6 per cent. on the second; 14.7 on the third and 31.6 on the fifth. On the other hand, in the statistics of Aoser, among 2,500 diphtheria patients treated without serum, there was a total mortality of 22 per cent.; 19 per cent. on the first day, 17 per cent. on the second, and 37 per cent. on the sixth.

In closing the discussion Rumpel still maintained that it was not correct to inject in the mild and subsiding cases. This view was sharply opposed by the other participants as cases originally mild suddenly might become very severe. As a practical result of the entire discussion it may be noted that the medical board of Hamburg appropriated $750 (3,000 marks) to furnish diphtheria antitoxin for patients not able to pay, and the issuance of inoculation tubes and their transportation to the hygienic institute are simplified so that the bacteriologic diagnosis might be made and treatment begun earlier.

VIENNA LETTER

(*From Our Regular Correspondent*)

VIENNA, Feb. 25, 1910.

The Reorganization of Hospitals

In a previous letter to THE JOURNAL (Feb. 5, 1910, liv, 479) it has been explained that a reorganization of medical institutions was secretly prepared by the ruling political party, which would mean the handing over of these institutions to political influences. Vehement contradictions only proved the correctness of the information, but an energetic resistance from all concerned and from the general public was strong enough to block the scheme. Nevertheless the bankrupt condition of the *Krankenhausfond* (the fund for all hospitals of Vienna) is a bitter fact, and in order to make both ends meet, the charges for admission have to be raised. This necessity is very unpleasant for those in power now, for the majority of patients come from the country districts, where the staunchest supporters of the clerical party live, and thus their voters have to pay more than before for hospital treatment.

Prohibition of White Phosphorus

A bill prohibiting the use of white phosphorus in match-factories has recently become law. It is due entirely to the efforts of medical men (see THE JOURNAL, April 24, 1909, lii, 1345, and July 17, 1909, liii, 217).

The Health of Vienna Laborers

The law of 1885, which necessitated the formation of compulsory sick-benefit clubs for all laborers, factory hands and employed persons earning less than $40 a month, has resulted in exact data on the health of part of the population. Thus the report for 1909 has just been published by the Union of Sick-Benefit Clubs which comprises 320,000 members, or about one-sixth of the inhabitants of Vienna. The report shows that the number of persons who were on the sick-list during 1909 was 115,525, or about 35 per cent. of all members. Only the cases of those who were laid up for at least three days and were unable to earn their living are reported. The morbidity improved constantly from January to December, for in the four quarters of the year the figures were 34,257, 28,893, 26,289 and 26,086. These figures mean the newly notified cases of disease. Tuberculosis of the respiratory passages is the most important of all our diseases; nearly 10 per cent. of all the cases are classified under this head; cases of other diseases of the respiratory organs amount to 14 per cent.; rheumatic diseases, 9 per cent.; tuberculous disease of the bones, 6 per cent.; disorders of the alimentary canal, 7 per cent.; and 17.5 per cent. of disabilities are due to industrial accidents. The mortality amounted to 1 per cent. of all members or about 3 per cent. of all patients. Here again tuberculosis claimed 1,510 persons, or 44 per cent. of all deaths; injuries were responsible for 108 deaths, or 3 per cent.; cardiovascular disorders for 420 deaths, or 12.5 per cent. The mortality decreased as did morbidity, the first quarter of the year showing 944 deaths, the last only 734, the other figures being 909 and 795. The cost per patient per day was on an average about 75 cents, or about $18 per patient, as the average duration of illness was twenty-four days. These figures comprise only the expenditure for sick-pay, doctor and medicines. A good many patients were sent to the public hospitals, for whom there had to be paid 50 cents per day to the hospital, while their sick-pay was reduced 50 per cent. If the different classes of diseases are considered separately, it appears that tuberculous patients were laid up the longest of all, the 11,000 phthisis patients being on the sick-list for eighty-six days on an average, or each tuberculous patient costing the club $65. Therefore, the report points out, it would be a much more economical way to erect special sanatoriums for phthisical members, where they would be made fit for work and cured much more quickly than at home. As regards the distribution of this disease, the printers, tailors, stonemasons, ironworkers, bakers and boot-makers give the worst figures (in the order as they are enumerated). The serious condition shown by the presence of the disease among bakers is emphasized in the report and it is pointed out, very justly as I believe, that the only means of escape is the erection of mechanical bakeries, where the flour and bread are handled solely by machines. Such bakeries are in existence in this country only in a few places, and only one of this kind is in Vienna. It is interesting to note that this model bakery is owned and run by a laborers' cooperative society.

Miscellany

Earlier References to the Relation of Flies to Disease.—In *Science* for February 18, is an interesting note by Prof. William A. Riley of Cornell University on the fact that the idea of the transfer of disease by insects is by no means new. Professor Riley says: "It is not generally known that as early as the sixteenth century there was definitely promulgated the theory that flies play a rôle in the transmission of the plague. Dr. Josiah Knott, 1849, lists Athanasius Kircher as among the earlier writers who believed that insects served as transmitters of disease. Dr. Kelly, in his fascinating volume, 'Walter Reed and Yellow Fever,' goes further and quotes from Kircher's 'Scrutinium Physico-medicum,' published at Rome in 1658, the remarkable statement:

> "There can be no doubt that flies feed on the internal secretions of the diseased and dying, then flying away, they deposit their excretions on the food in neighboring dwellings, and persons who eat it are thus infected.

"Unfortunately Dr. Kelly's translation stops just short of Kircher's clause in which he attributes this theory to Mercurialis. Mercurialis, a celebrated Italian physician, who lived from 1530 to 1607, was one of the encyclopedic writers typical of the period. I have searched the available volumes of his works, including several editions of his extended treatise on the cause and nature of the plague. ('De pestilentia . . . in universum, præsertim vero de Veneta et Patavina,' Venice, 1577.) So far I have failed to locate the reference in question, but it is evident that Kircher was indebted to Mercurialis for the suggestion. The statement of Mercurialis can be regarded as no more than a lucky guess, but to Kircher we must give more credit. This astute Jesuit, born in 1601, was

an indefatigable worker, and his writings are much more than mere compilations. There is no doubt that long before Leeuwenhoek's discovery Kircher had seen the larger species of bacteria, which he described in the following words:

"It is known to all that decaying bodies abound in worms, but not until after the wonderful invention of the microscope was it found that all putrid substances swarm with an innumerable brood of worms which are imperceptible to the naked eye, and I would never have believed it if I had not proved it by frequent experiments, during many years. ('Scrutinium Physico-medicum,' 1658 ed., p. 42.) This is one of many references which might be cited. In his book 'Ars magna lucis et umbræ,' published twelve years earlier, there is to be found mention of these 'worms,' showing that Kircher's observations really had extended over 'many years.'

"Among the substances in which he found these 'worms' he mentions spoiling meat, cheese, milk, vinegar and decaying serpents. He does not stop with the mere discovery, but he attributes the production of disease to the organisms, and formulates a theory of the animate nature of contagion. Interpreted in this light, the statement of Mercurialis assumes a new dignity. The germ theory of disease, which became dominant so soon after this period, fell into disrepute, to be revivified in the latter part of the nineteenth century. Only now are we putting to the test the theory of Kircher relative to the rôle which flies play in the dissemination of disease."

Pathology and Progress of Pulmonary Tuberculosis Read by Sign and Symptoms.—The symptomatology of tuberculosis becomes intelligible only as we understand what is taking place beneath the finger and stethoscope, says William Porter in the *Weekly Bulletin of the St. Louis Medical Society*. One of the earliest signs of localized disease in the lung is muscle tension of the corresponding side as noted by Pottenger. Examining patients with his eyes closed Porter was astonished to find how accurate the evidence was, and especially in the early cases in which the lesion is beginning and ordinary interrogations are inadequate. Next to this as an early sign is slight bronchial roughness due to tubercles in the lumen of the tubule, producing a slight change in the respiratory note, not to be confounded with the increased pitch in the finer bronchial murmur often heard in bronchitis. This antedates prolonged expiratory murmur produced by invasion of the vesicle with impaired elasticity of the vesicle wall. Bacilli are not found in this stage as a rule. Potter uses the Moro and v. Pirquet tests, but believes that time is the best test and that if the patient is under observation he is taking no risk. The stage of consolidation is next, with impaired circulation and closed vesicles. Necrosis follows and bacilli are now found, and often the germs of mixed infection. The fever of tuberculosis is undoubtedly caused by the absorption of tuberculin from points of infection. He offers as a suggestion to be followed up that when the local infection is surrounded, absorption lessened and temperature normal, immunity may be induced by stimulating absorption under careful observation by well-directed exercise or passive manipulation either by light percussion or by the vibrator. He has two patients in whom he can induce a degree of fever by gentle vibration over the site of the disease. Believing that the intercurrent diarrhea and distended ascending colon are suggestive of autoinfection from the intestinal tract, Porter has given an enema with the patient in the knee-chest position, followed after a week by the daily use of normal salt solution. This procedure is of value in many febrile cases. Hemorrhage is alarming to the patient but unless caused by perforation of a large vessel in the majority of cases is not dangerous, but may alleviate the symptoms.

Subpreputial Method of Applying Mercury.—G. Milian in the *Progrès Médical*, Dec. 11, 1909, suggests a novel way of administering mercury. A pastille the size of a bean is made with cocoa butter containing 0.01 gm. (1/6 grain) of mercurial ointment and this is softened and pressed into the sulcus behind the glans penis and the prepuce drawn over it. The medicament melts with the heat of the body and the mercury is absorbed. Not enough liquid is produced by the melting of the cocoa butter to cause its escape from the preputial sac and practically all of the medicine is absorbed. The method suffices for the treatment of disease, especially syphilis, in any part of the body. It is more particularly applicable, however, to the treatment of local lesions.

Pharmacology

PASSIFLORA AND DANIEL'S CONCENTRATED TINCTURE OF PASSIFLORA

Report of the Council on Pharmacy and Chemistry

The Council has voted that the drug passiflora (passion flower) be not accepted for New and Nonofficial Remedies and has recommended that the following article be published in THE JOURNAL. It is considered important to call attention, not only to the lack of reliable evidence of the therapeutic value of passiflora, but also to the absurdity of the claims which are made for Daniel's concentrated tincture of passiflora, a preparation which has been already refused recognition.

W. A. PUCKNER, Secretary.

PASSIFLORA

Although passiflora was introduced into medicine nearly seventy years ago, the literature concerning it is not very extensive; it is not mentioned in the standard works on pharmacology and its chemistry seems never to have been worked out. There appears, also, to be no record of experimental investigations of the drug with reference to its pharmacologic action, except an article by I. Ott,[1] who used "Daniel's concentrated tincture." Ott claimed that it lessened the reflex irritability of the cord and paralyzed motion by acting on the motor centers in the cord, and that it increased the rate of respiration. He also stated that because of its action on the vasomotor centers it reduced the frequency of the heart-beat and lowered arterial tension, but these effects were only temporary.

On the clinical side the reports are not numerous and such as have been made do not appear to be based on very extensive trials nor on conditions of observation that would entitle them to more than slight consideration. S. D. Bullington[2] reports good results, but no cure, in one case of epilepsy, and improvement in a case of insomnia. W. J. Stapleton[3] recommends it in the form of a concentrated tincture (not the one advertised so extensively), and states that he has used it with great success in insomnia, hysteria, neurasthenia, neuralgia, nervous and physical prostration, and in alcoholism. In his opinion its action is most apparent in cases of nervousness due to causes other than pain. S. Harnsberger[4] reports two cases in which partial blindness followed the taking of potassium bromid and passion flower.

Extravagant and inconsistent claims are made for Daniel's concentrated tincture of passiflora in the advertising literature, where it is recommended for such a wide range of diseases as asthma, typhoid fever, convulsions and paralysis.

None of the evidence is sufficient to show that passiflora has therapeutic value; hence it is deemed inadvisable to include this drug in the list of nonofficial remedies.

Chicago Medical Society Condemns Nostrum Work by American Druggists Syndicate

At the regular meeting of the Council of the Chicago Medical Society, March 8, 1910, resolutions presented by the Committee on Pharmacology through Dr. Walter S. Haines, chairman of the committee, were adopted as follows:

Resolved, That the Chicago Medical Society in council assembled, condemns these practices of the American Druggists Syndicate, and that it calls on the National Association of Retail Druggists to secure their discontinuance, in order that the Chicago Medical Society may, with self-respect, be able to continue to cooperate with the Chicago Retail Druggists' Association in the "get-together" movement; be it further

Resolved, That the Secretary of the Chicago Medical Society be instructed to publish these resolutions in *The Bulletin* of the Society, to transmit a copy of the same to THE JOURNAL of the American Medical Association and to editors of the various state journals, as well as other prominent medical journals, and that it be offered for publication in pharmaceutical journals.

1. Med. Bull., 1898, xx, 457-464.
2. Nashville Jour. Med. and Surg., 1897, lxxxi, 107-109.
3. Detroit Med. Jour., 1904-5, iv, 17.
4. Virginia Med. Semimonthly, 1898-9, iii, 392.

MORE MISBRANDED NOSTRUMS

What Enforcement of the Food and Drugs Act Is Doing for the Protection of the Public

Lying on the label continues to be unprofitable, thanks to the efficiency of the officials who are intrusted with the enforcement of the national Food and Drugs Act. Many of the frauds which the government has shown up have been reported in THE JOURNAL; some of the latest judgments obtained against the exploiters of nostrums are now given.

"DR. FAHRNEY'S TEETHING SYRUP"

This preparation was put on the market by Drs. D. Fahrney & Son, Hagerstown, Md., and the following claims were made for it on the labels:

"Is the best remedy for teething."
"No bad results from the continued use of it."
"Contains nothing injurious to the youngest babe."
"A sure remedy for all ailments incident to babes from one day old to two or three years."

A sample of the preparation was analyzed at the Bureau of Chemistry, United States Department of Agriculture and was found to contain:

Alcohol, by volume	8.84 per cent.
Chloroform, to the fluid ounce	0.408 minims
Morphin, to the fluid ounce	0.126 grains

Inasmuch as a mixture of morphin, chloroform and alcohol cannot truly be said to be non-injurious to infants, and as "bad results" are likely to occur "from the continued use of it," as, too, it is neither "a sure remedy for all ailments" nor "the best remedy for teething," a United States district court decided that "Dr. Fahrney's Teething Syrup" was misbranded. The defendant entered a plea of guilty and a fine of $100 was imposed.

"GOWAN'S PNEUMONIA CURE"

This nostrum, which was marketed by the Gowan Medical Company of Chicago, has been referred to before in THE JOURNAL,[1] a cursory examination having been made in the Association laboratory. The particular claims on which the government obtained its judgment for misbranding were:

"It is entirely different from any other remedy, containing new principles never before applied."
"Supplies an easily absorbed food for the lungs that quickly effects a permanent cure."
"It was endorsed and advertisement accepted by the *American Medical Journal* as a valuable therapeutic agent."

A sample of "Gowan's Pneumonia Cure" was analyzed at the government laboratory and the product was found to consist of:

Lard	Opium
Camphor	Stearin
Turpentine	Quinin
Carbolic acid	Quinin sulphate

As the analysis showed that the product was not "entirely different from any other remedy" and did not contain "new principles," as, moreover, there is no such thing as a "food for the lungs" separate and distinct from a food for the whole body and, lastly, as the preparation was never advertised in, nor indorsed by, the *American Medical Journal*, the nostrum was declared misbranded. It was further misbranded in that the carton labels did not have printed on them in plain and conspicuous type the amount of opium which the preparation contained.

The defendant pleaded guilty and was fined $200.

"EYELIN"

This was a Chicago product, marketed by the Eyelin Company and sold at one dollar a box. The label contained the statements:

"Repairs and Rejuvenates the Eye and Sight."
"Reshapes and Rejuvenates the Eye and Sight."

Analysis of the stuff in the government laboratory disclosed the fact that it consisted essentially of:

Vaselin, perfumed.

The court decided that petrolatum, even when perfumed, could scarcely be capable of repairing, reshaping or rejuvenating either the eye or the sight and that "Eyelin" was, therefore, misbranded. A plea of guilty was entered and a fine of $10 imposed.

"BROMO FEBRIN"

William H. Smaw & Company, of Baltimore, Md., made a "headache powder" which they admitted contained 4 grains of acetanilid. The claims made for this preparation were:

"Permanent in Results."
"It is Absolutely Safe."
"Sure Cure for Headache and Neuralgia."

Analyzed at the Bureau of Chemistry, each powder was found to contain:

Acetanilid ..... 6 grains (nearly)

As a headache powder containing nearly 6 grains of acetanilid must be far from "absolutely safe," as, too, acetanilid is not a "sure cure for headache and neuralgia," and as the results obtained from the use of acetanilid are not "permanent," the court declared the nostrum misbranded and the defendant on entering a plea of guilty was fined $20.

"RADOL"

This fake will have a familiar sound to many of our readers as it was exposed[2] in connection with its exploiter one "Rupert Wells," whose real name is Dennis Rupert Dupuis. This individual who for years conducted a viciously cruel "cancer cure" at St. Louis was finally put out of business by the government through the issuance of a postoffice fraud order. "Radol" was the "radio-active" and "radium impregnated fluid" which Dupuis sold to his dupes for the "cure" of cancer. As has previously been reported, analysis showed that "Radol" was in fact a weak, acidulated, watery solution of quinin sulphate, with about 7 per cent. alcohol. As it was neither radio-active (to a greater extent, at least, than any hydrant water) nor contained radium and as, too, the label failed to state the presence of alcohol the nostrum was declared misbranded on both counts.

A plea of guilty was entered and fines of $100 and $50 respectively were assessed.

1. THE JOURNAL A. M. A., May 9, 1908; reproduced in "The Propaganda for Reform," p. 137

2. THE JOURNAL A. M. A., Feb. 20, 1909, and reprinted in pamphlet form as "The Rupert Wells Case," price, four cents.

Correspondence

Inconsistency in Medical Teaching

To the Editor:—As a senior student in a medical school I take the privilege of passing a criticism on one of the most glaring inconsistencies in our present system of medical training. In fact they are of such serious import that I sincerely hope for a thorough, emphatic comment editorially in THE JOURNAL. The seed is sown in the medical school and the harvest of weeds is reaped in professional life—I refer to the dispensing of proprietary medicines.

From what I am able to learn, most medical schools are alike in this. The good pharmacologists rack their brains and ingenuity to teach us to think treatment in drugs, not medicines, and treat each case for itself. Then the physicians in charge of the dispensaries prescribe treatment, "give prescription number so and so." The inconsistency is interesting if nothing else. One minute our professors shout their condemnation of proprietary medicines, and the next follow the "easiest way." Will you blame us next year?

EDWARD J. KEMPF, Cleveland, O.

The Distribution of Rabies

To the Editor:—In the editorial on page 799 of THE JOURNAL, March 5, 1910, the following sentence occurs: "In short, so far as can be learned, in the territory of the United States only the Rocky Mountain and Pacific Slope regions are free from the disease."

This statement is erroneous for the reason that during the past few months rabies has been found among dogs in at least two localities in California, one focus being in the vicinity of Los Angeles and Pasadena, the other being in the central part of the state.

In the monthly bulletin of the California State Board of Health for January, 1910, v, No. 5, Dr. R. A. Ward, director of the State Laboratory of Hygiene reports four positive cases of rabies, presumably in dogs.

GEORGE W. McCOY,
Passed Assistant Surgeon, U. S. P. H. and M.-H. S.

A Department of Public Health

The following correspondence, which explains itself, is commented on editorially in this issue:

UNITED STATES SENATE,
WASHINGTON, D. C., Feb. 23, 1910.

Dr. Charles A. L. Reed, Chairman of the Legislative Committee, American Medical Association.

My Dear Doctor Reed:—I greatly appreciate your courteous letter of the 18th inst. I am aware that there has been objection made to establishing a new cabinet officer, but I am unable to believe that the magnitude and importance of this subject has been realized by those who seem to think that a cabinet officer is too great a position for the officer responsible for safeguarding the public health, and that a subordinate bureau should suffice.

I called attention in the United State Senate a year ago (June 15, 1909) to the abnormal death-rate in the United States as compared to the death-rate in New Zealand and in the Australian states, where they have a better form of government for the preservation of human life; where the greed of money-making is not permitted to sicken little children with milk preserved with formaldehyd and other impure food and where monopoly is not permitted to establish or maintain unhealthy conditions destructive of human life.

The death-rate in the United States is 16.1 persons to the thousand, in the Australian states 10.6 to the thousand, in New Zealand 9.3 to the thousand, showing the average loss of life in the United States of seven to the thousand in excess of this better governed country. In other words our great republic shows an annual loss of over 500,000 human beings who might be saved, for our country is as healthful as New Zealand.

I believe in CONSERVATION, and first of all in the conservation of human life and that unthinking commercial ambition shall not be permitted to destroy it. The magnitude of this matter I am not willing to minimize or leave the care of the public health under a subordinate bureau however organized, although that is better than nothing. I should like to see a "Secretary of Public Health" because the importance and dignity of the work justifies it. If the medical men of the United States believe in this they should say so, as it is the duty of the profession to point out the importance of the matter.

In conclusion, permit me to say that I stand unequivocally for the principle of the bill as I have drawn it, that is, for a Department of Public Health to be made up of the health agencies of the government and to be under the direction of a Secretary of Public Health. If, however, it shall be found that the bill can be strengthened in its details, it can be done in committee and to that end I shall be very grateful for suggestions. Very respectfully, ROBERT L. OWEN.

CINCINNATI, March 10, 1910.

Hon. Robert L. Owen, United States Senate, Washington, D. C.:

Dear Sir:—In compliance with your request for suggestions to be taken up in connection with the hearing on the bill recently introduced by you to create a department with a Secretary of Health, I beg to reply in my capacity as Chairman of the Legislative Committee of the American Medical Association. In that capacity I have the honor at the same time to request, first, that you avail yourself of an early opportunity, and in your own way, to lay before the Senate the facts which I shall present and, second, that you arrange at an early date for a hearing on your bill, the vital principle of which is so distinctly in consonance with the interests of the people as represented by and through the medical profession.

This is shown by the fact that the American Medical Association, through its legislative conference attended by delegates from thirty-six states and from the Army, the Navy and the Public Health and Marine-Hospital Service, held at Chicago, March 2, 1910, urged by resolution, as the Association has repeatedly urged for nineteen years, "that a bill be passed recognizing the health interests of the country in the title of a department of the national government and that within that department there be organized all national health agencies."

The physicians of the country who, as professional students of the question and as the natural advisors of the people on health questions and who, consequently, have first knowledge of the subject, have long maintained their present attitude for the following specific reasons:

First: The time has arrived when, under the law of precedence, the health interests of the country ought to pass from their present bureau stage of development to that of a department. This course of evolution was exemplified, first, I believe, in the development of the Department of the Interior, then that of Agriculture and, finally, that of Commerce and Labor. In each of these instances the antecedent bureaus had existed for periods varying from a few years to a decade or two. The health interests of the country, more fundamental than all, have been left in the form of, successively a "Service," then of a "Bureau," for more than a century.

Second: The creation of a Department of Health is furthermore demanded, first, because sanitary science has demonstrated its ability to conserve the efficiency and prolong the life of the people and, second, because nothing less than the establishment of a department can have that maximum of moral force and educational influence, that maximum of prestige and effectiveness combined with business-like economy of administration that will enable it to deal with the disgraceful, not to say monstrous, conditions now prevailing in this country.

Third: That a Department of Health with the fulness of power and influence that can inhere only in a department and nothing less than a department, is demanded by the conditions to which I have alluded is conclusively established by the fact that, first, about 600,000 people die in this country every year from preventable causes; second, that something more than 3,000,000 more are made ill and idle for variable periods every year from the same causes; and, third, that the annual economic loss from this source alone amounts to more than $1,500,000,000 every year.

Fourth: That nothing less than a Department of Health acting in cooperation with the states and in full recognition of their rights and powers, is practicable for the assembling and coordinating of the existing health agencies of the government and for their effective, economic and business-like administration.

Fifth: That nothing less than the creation of a Department of Health can comprise a fulfilment of the pledge to the people contained in the platform of every political party that appealed to the popular suffrage in the last national campaign.

In view of the foregoing facts and considerations I have the honor to request that at the hearing on your bill care be taken to give special consideration to the suggestions which I shall enumerate.

Many, if not all of them, have been covered in general terms and some of them in specific terms, in your bill. It has seemed, however, that by presenting them somewhat in detail in the form of sections to a possible bill I could facilitate their consideration in consecutive order as follows:

Section 1, ought to provide, as your bill does provide, for the establishment of a Department of Health under the supervision of the Secretary of Health who shall be appointed by the President by and with the consent of the Senate at a salary of $12,000 per annum and who shall be a member of the cabinet of the President and who shall discharge the duties prescribed in the act.

Section 2 might with propriety provide for the constituent bureaus of the Department of Health as follows:

A. *The Bureau of Hygiene and Preventive Medicine* to which (a) shall be transferred the Laboratory of Hygiene now located in the Bureau of Public Health and Marine-Hospital Service in the Department of the Treasury together with all duties, functions, powers, rights and prerogatives now vested by law in such Laboratory of Hygiene; and it shall be the further duty of the Bureau of Hygiene and Preventive Medicine (b) to cooperate with the respective states, territories and dependencies in accumulating statistics and other information as to causes and prevalence of disease, (c) to conduct

continuous investigation into all sources of danger to human health and life, (d) to formulate rules and regulations for carrying out these provisions, and (e) to publish the records and results of its labors, all under the direction and by the approval of the Secretary of Health.

B. The Bureau of Foods and Drugs, to which (a) shall be transferred all duties, functions, powers, rights and prerogatives now devolving by the Food and Drugs Act of 1907 on the Bureau of Chemistry of the Department of Agriculture; and the Bureau of Foods and Drugs shall also (b) supervise the cleanliness and other hygienic and sanitary features of the buildings and products of manufactories, cold-storage plants and other establishments engaged in the commercial preparation or in the storage of any food product or products whatsoever destined for interstate commerce; (c) establish standards of purity of foods; (d) conduct investigations to determine the best method of preparing foods with reference to the full development of their nutritive value; (e) determine the food value of articles not now generally recognized as foods; (f) establish standards of purity for drugs; (g) make a systematic and exhaustive study of the medicinal flora of the United States and its territories and dependencies; (h) investigate, and where practicable, promote the naturalization and commercial cultivation within the United States, its territories and dependencies of medicinal flora indigenous to other countries; (i) publish reports of its investigations, activities and conclusions and, (j) formulate and enforce necessary rules and regulations all under the direction of the Secretary of Health.

C. The Bureau of Marine Hospitals, to which shall be transferred the marine-hospital service of the Bureau of Health and Marine-Hospital Service of the Department of the Treasury together with its present personnel and all duties, functions, powers, rights, and prerogatives now vested by law in such marine-hospital service, all to be administered under the direction of the Secretary of Health.

D. The Bureau of Quarantine to which shall be transferred the quarantine service now located in the Bureau of Public Health and Marine-Hospital Service of the Department of the Treasury together with its present personnel and all duties, functions, powers, rights and prerogatives now vested by law under such Quarantine Service, all to be administered under the direction of the Secretary of Health.

E. The Bureau of Institutions and Reservations, to which shall be transferred all hospitals, asylums, "homes" and infirmaries located in any other department of the government except the Department of War and the Department of the Navy. And there shall likewise be transferred to this bureau the Hot Springs Reservation and all other reservations now or hereafter established by the federal government for the conservation of health.

F. The Bureau of Vital Statistics, to which shall be transferred the Bureau of Vital Statistics now located in the Department of Commerce and Labor, together with its present personnel and all duties, functions, powers, rights and prerogatives now vested by law in such Bureau of Vital Statistics.

G. The Bureau of Publication and Publicity, which shall (a) publish the reports of the Secretary of Health and all reports, bulletins and documents of all bureaus of the Department of Health when approved for the purpose by the Secretary of Health; and (b) devise and carry out the most effective means by which information originating in the Department of Health or any of its bureaus may be most widely and effectively disseminated for the information and guidance of the people.

Section 3 might with equal propriety provide that (a) there shall be a medical service of the Department of Health (b) designated by the initials U. S. H. S., meaning "United States Health Service," (c) which service shall consist of (1), a Regular Medical Corps which shall consist of the United States Marine Hospital Corps with its present personnel and without other modification in the law governing the same or in the regulations enacted in pursuance of such law than may be necessary to comply with the provisions of this act; and (2) a special medical corps, which shall consist of all physicians, surgeons and medical officers now employed in any capacity in any Department of the Government, excepting in the Army and Navy who, subject to the direction of the Secretary of Health, but without having their status otherwise disturbed, shall continue in their present capacity until the expiration of their present tenure, but thereafter all such positions shall be filled by detail from the Regular Medical Corps, which shall be selected in the first instance in accordance with regulations not less exacting than those which now govern entrance into the Marine Hospital Corps. (d) The Secretary of Health shall, consistently with the provisions of this act, (1) define the grades of health service with due regard to the period of service and efficiency record of its members, (2) prescribe uniforms and insignia for each grade, (3) formulate rules and regulations for the government of the corps and at his discretion (4) detail any member of the corps for duty in any bureau of the Department of Health, or (5) for duty in any other department on request of the secretary of such department or, (6) for duty in any state, territory or dependency or in the Panama Canal Zone when requested so to do by the proper authority of such state, territory, dependency or the Panama Canal Zone whenever the resources of the service will permit such detail.

Section 4 might further define the duty of the Secretary of Health by stating that in addition to the duties elsewhere prescribed in the act (a) he may, in his discretion, transfer specific duties from one bureau to the other whenever required in the interests of both economy and efficiency; (b) exercise all the functions heretofore exercised respectively by the Secretary of the Treasury, the Secretary of the Interior, the Secretary of Agriculture and the Secretary of Commerce and Labor in connection with any bureau, division or service transferred by the act to the Department of Health; (c) exercise all duties heretofore exercised by the Secretary of Agriculture in the enforcement of the pure Food and Drugs Act; (d) discharge such other duties as may be prescribed from time to time by the President and, finally, (e) prepare and submit reports relative to his department embracing suggestions for the improvement of its service including recommendations for change in personnel, duties and salaries.

Section 5 might provide (a) that the President be authorized and directed within one year from the passage of the act to appoint an Advisory Board of Health to consist of six members, two to be appointed for one year, two for two years and two for three years each, who shall serve without pay except their traveling expenses for not more than six meetings annually and whose functions shall be to confer with and advise the Secretary of Health relative to all questions of policy pertaining to human health and on other questions at the request of the Secretary of Health; (b) the present consultative arrangement between the present Bureau of Health and representatives of the state boards of health might with propriety be continued between the Department of Health, its secretary, advisory health boards, chiefs of bureaus and the representatives of the state boards of health.

Section 6 and succeeding sections might provide in the usual way for the transfer of officers, clerks, employees, property, fixtures, etc.

In asking that you take the foregoing points under special consideration, that the hearing be arranged for the earliest practicable date and that legislation be reached if possible at the present session of Congress, may I ask that you urge on your colleagues the importance to the people of giving due weight to the conditions to which I have referred?

I have said that over 600,000 of our people die every year from preventable causes. Suppose that our entire Army and Navy were swept off the earth not once, but three times in a year. Would the Congress do anything about it? There are nearly 5,000,000 needlessly ill every year. Suppose that every man, woman and child in all New York, with Boston and Washington added, were similarly stricken. Would the Congress inaugurate an inquiry? Our losses from these causes amount to $1,500,000,000 every year. Suppose that every dollar appropriated annually for the expense of the government and half as much more were actually burned up and the ashes blown into the sea. Would the Congress take action in the premises?

Our health agencies are scattered, uncorrelated and unorganized. Suppose that our monetary system were looked after by a dozen or more bureaus in almost as many departments and that it were responsible for $1,500,000,000 loss every year. Would Congress be disposed to think that there was possible relationship between the lack of organization and the deficit?

In reiterating the request for an early and full hearing on this question, I beg to emphasize the fact that I do so in behalf of the American Medical Association and in behalf of the interests of the people of the United States as represented by and through the medical profession. And in this behalf and in view of the fact, deducible from our vital statistics, that in this country alone the people are dying from preventable causes at the rate of more than one every minute, and that they are falling ill from the same causes at the rate of more than five every minute, may I not venture to suggest that the subject is one of sufficient importance to be entitled to precedence over some other questions that may possibly be engaging the attention of the committee?

Awaiting your early reply, I have the honor to be, very sincerely, CHARLES A. L. REED, Cincinnati,
Chairman of the Legislative Committee, American Medical Association.

P. S.—I beg leave to advise you that I am sending a letter to the same purport and largely in the same language as this, to Hon. James R. Mann, of the House, who has requested suggestions to be considered in committee in connection with the recommendations relative to the public health clause contained in the President's message.

Queries and Minor Notes

PHYSIOLOGY OF THE TONSIL

To the Editor:—Please give in THE JOURNAL the physiology of the tonsil. Text-book literature is decidedly meager.
FRED W. A. BROWN, Oshkosh, Wis.

ANSWER.—The tonsils must be classified as vestigial in character, that is, they are vestiges in the mammals of structures that had important functions in the lower vertebrates. For an explanation of the origin of the tonsil and its nasopharyngeal relations we must go back to the lower forms of the mammals and to the lowest vertebrates. The higher fishes have four or five branchial arches between which are four branchial slits or gill slits. These branchial slits open out of the pharynx. Every mammal, including the human subject, show traces of the branchial arches and gill slits in the course of intrauterine development. Briefly stated, one may say that the first arch has its homology in the mandibular arch; the second and third in the arch of the hyoid bone; the fourth and fifth in the thyroid cartilage. In the pharynx of mammals the gill clefts do not form complete slits but simply pouches opening out from the side of the pharynx into the structures of the cervical region. The first branchial arch develops into the Eustachian tube and middle ear; the second into the tonsil; the third into the thymus gland; and the fourth into the thyroid gland. For a more extended description of this development of the tonsil Minot's work on human embryology may be consulted.

In common with other vestigial structures, the tonsil is more subject to diseased conditions than are structures which are not vestigial but actively functioning throughout the life of the individual. The tonsils are scarcely mentioned in any work on physiology. We quote two statements from medical authors regarding the function of the faucial tonsil; the conservatism of the author's statements is to be noted in each case.

"The physiologic function of the tonsil has never been established. From the experiments of Goodale and others it would seem that one of its offices is the arrest and destruction of pathogenic micro-organisms although the extent to which it is capable of this is limited and when the limit is exceeded the tonsil becomes a potent carrier of infection." From Dr. G. D. Bryden Delavan's article in the Reference Handbook of Medical Sciences, 1904, vii, 811.

The tonsils "probably protect the organism from infections of various kinds by acting as filters, and by in some way lessening the toxicity of micro-organisms which come within their sphere of activity. Although they are, accordingly, beneficent in their activity, the tonsils are very subject to morbid changes. Thus, they frequently become hypertrophied to such an extent as to interfere seriously with normal respiration, and they undoubtedly, under many circumstances, instead of acting as protectors against the invasion of micro-organisms, serve rather as portals of entry. The bacterial flora of the tonsillar surface is surprising in its number and variety and many virulent bacteria are found in the crypts." Francis R. Packard, M.D., Osler's Modern Medicine, iii, 596.

An excellent article on the anatomy and physiology of the tonsils, by Dr. C. M. Robertson, appeared in THE JOURNAL, Aug. 28, 1909, p. 684.

TREATMENT OF NITROGLYCERIN HEADACHE

To the Editor:—Dr. Laws in THE JOURNAL, March 5, 1910, says that treatment of nitroglycerin headache is very unsatisfactory. I have treated three cases of this kind of headache, with very satisfactory results, by having the patient inhale the fumes of iodoform. I have always had a vague idea that there was a chemical combination between the iodoform and nitroglycerin. Am I right? Or is it a case of the cure being worse than the disease? I refer to nitroglycerin in dynamite. H. C. CALDWELL, Ridgeland, Wis.

COMMENT.—So far as we know, there is no chemical reaction liable to take place between iodoform and nitroglycerin under the conditions given above. Nitroglycerin is a very slightly volatile substance having a boiling point above 160 degrees C. and, when poisoning had been caused by it, it would be in solution in the blood. It is hardly to be supposed that iodoform in vapor would be sufficiently absorbed to react chemically with the nitroglycerin. Probably the relief of the headache is due to a sedative action of the iodoform vapor. Some caution should be exercised in using iodoform vapor in this way, however, as the toxic and fatal dose of iodoform when actually absorbed into the blood is not large, probably not more than from 1.20 to 2 gm. (from 20 to 30 grains).

The Public Service

Medical Department of the Army

Changes for the week ended March 12, 1910:

Gunckel, George L., dental surgeon, reports for temporary duty at Fort Moultrie, S. C., left Fort Morgan, Ala., on March 4, 1910.

Ames, John R., dental surgeon, returned to Fort Snelling, Minn., from duty at Fort Yellowstone, Wyo.

Ashburn, Percy N., major; Glennan, James D., lieut. col.; Frick, Euclid B., lieut. col., appointed members of a board to meet at the Army General Hospital, San Francisco, for examination of such officers of the Medical Corps as may be ordered before it to determine their fitness for promotion.

Bradley, A. E., lieut. col., granted 30 days' leave of absence about May 25, 1910.

Christensen, W. A., 1st lieut., M. R. C., ordered to active duty in the service of the United States, and will report to the commanding general, Philippines Division, for assignment to duty.

Mills, Robert H., dental surgeon, reported for temporary duty at Fort Ontario, N. Y.

Kean, Jefferson R., lieut. col.; Russell, Frederick F., major, ordered to make not to exceed four visits to Baltimore, Md., on official business pertaining to the inspection of plants for purifying water, and on the completion of the duty enjoined, will return to their proper station after each visit.

LeWald, Leon T., capt., orders directing him to proceed from Columbus Barracks, Ohio, to the Philippines for duty, April 5, is amended as to direct him to sail from San Francisco, Sept. 5, 1910, instead.

Mudd, Leo C., 1st lieut., M. R. C., ordered to active duty and will proceed to Jefferson Barracks, Mo., for station and duty.

Medical Corps of the Navy

Changes for the week ended March 12, 1910:

Halsey, W. H., acting asst.-surgeon, appointed Acting Assistant-Surgeon from March 1, 1910.

Wieber, F. W. F., surgeon, ordered home to wait orders.

Brown, E. M., P. A. surgeon, orders of February 28, to duty at the Naval Station, Guam, M. I., revoked; ordered to the Naval Hospital, Mare Island, Cal., for treatment.

Eaton, W. E., appointed Acting Assistant Surgeon from March 7, 1910.

Halsey, W. H., acting asst.-surgeon, ordered to duty at the Naval Hospital, Norfolk, Va.

Public Health and Marine-Hospital Service

Changes for the week ended March 9, 1910:

White, J. H., surgeon, directed to proceed to Quarantine, La., on special temporary duty.

Lumsden, L. L., P. A. surgeon, granted 5 days' leave of absence from March 8, 1910, under Paragraph 191, Service Regulations.

Billings, W. C., P. A. surgeon, granted 3 days' leave of absence en route to station.

Robinson, D. E., P. A. surgeon, granted 4 days' leave of absence from March 3, 1910, on account of sickness.

King, W. W., P. A. surgeon, on being relieved by Passed Assistant Surgeon M. W. Glover, directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Wille, C. W., P. A. surgeon, directed to attend the opening of a National Campaign on Oral Hygiene, to be held in Cleveland, Ohio, March 18, 1910.

Glover, M. W., P. A. surgeon, directed to proceed to San Francisco, for duty, relieving Passed Assistant Surgeon W. W. King.

Spratt, R. D., P. A. surgeon, on being relieved by Acting Assistant Surgeon J. A. Moncure, directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Hotchkiss, S. C., asst.-surgeon, relieved from duty at San Francisco, and directed to proceed to Honolulu, Hawaii, and report to the Chief Quarantine Officer for duty.

Branham, H. M., acting asst.-surgeon, granted 3 days' leave of absence from March 8, 1910.

Bullard, John T., acting asst.-surgeon, granted 30 days' leave of absence from March 1, 1910.

Earl, F. D., acting asst.-surgeon, granted 5 days' leave of absence from March 7, 1910.

Frissell, C. M., acting asst.-surgeon, granted 20 days' leave of absence from March 6, 1910.

Moncure, J. A., acting asst.-surgeon, transferred from duty at Gulf Quarantine, Miss., to Brunswick Quarantine Station, Ga.

Tuttle, Jay, acting asst.-surgeon, leave of absence granted Jan. 24, 1910, amended to read 30 days' leave from Feb. 25, 1910, and 22 days' leave, without pay, from April 1, 1910.

Wetmore, W. O., acting asst.-surgeon, granted 7 days' leave of absence, Feb. 10 and Feb. 16 to 21, 1910, under Paragraph 210 Service Regulations.

Board of medical officers convened to meet at the Marine Hospital, Key West Fla., March 7, 1910, for the purpose of conducting a physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon E. K. Sprague, chairman; Acting Assistant Surgeon S. D. W. Light, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

An Interesting Contribution to the Study of Lodge Practice

The following editorial article taken from the *Mid-West Eagle* of February 15 will interest all who have followed the discussion on lodge and contract practice. The *Mid-West Eagle* is the official organ of the Fraternal Order of Eagles for the middle west:

AERIE PHYSICIAN PROBLEM

The Grand Worthy President Has a New Proposition for the Smaller Aeries

One of the difficult problems has been the aerie physician. In cities where there is a large membership it is easy to secure doctors, for the pay is good. But in small towns where the membership is small and where the doctor would practically have to give up many of his regular customers and take care of his whole family for two dollars a year the job does not look so inviting. Many inquiries have been made on the solution of the matter. Medical societies have taken action against their members serving. As a result the Grand Worthy President has sent out the following circular, which explains itself:

"Dear Sirs and Brothers:—In certain parts of the country, we are having trouble with state, county and city medical associations, which refuse to permit their members to serve aeries in the capacity of aerie physician, as defined by our laws. This fraternity has no desire for controversy with any organization or members of the medical profession; but one of the important beneficial features of the Fraternal Order of Eagles is to supply the services of a physician to our members and their families. To disregard or not to provide for this important consideration would be to slight one of the basic ideas on which this organization is founded.

"There are, at the present time, aeries located in different cities and towns of the United States, which are unable to procure the services of a physician for aerie physician purposes, except at such outrageous terms as will ultimately, if acceded to, bankrupt such aeries.

"I have, therefore, determined to prepare a list of physicians who are competent to serve as aerie physician, who desire to change locality, and who will, if given a favorable contract by an aerie, move to the communities in which such aeries are located.

"Will you kindly read this communication at your next aerie meeting and ascertain if any members know of any physician qualified in every way to serve as aerie physician, who desires to change his place of residence? Will you also ask your aerie physician if he knows the names of any physicians who have the requisite qualifications and might wish to be considered by me? If your aerie is having difficulty in securing an aerie physician under favorable contract terms, because of the attitude of the medical association, will you kindly communicate with me at once?

"Of course, you understand that these physicians must be members of the Fraternal Order of Eagles.

"Trusting that the information received will enable us to solve this vexing question, I remain,

Yours fraternally in L., T., J. and E.,
FRANK E. HERING,
Grand Worthy President."

Probably no one of the so-called fraternal orders has as objectionable methods for the selection and payment of medical men as the Fraternal Order of Eagles. The communication given above from the "Grand Worthy President" is ample evidence that physicians in neighborhoods in which local organizations of this order are located are rapidly coming to appreciate the specious nature of the inducements offered to physicians by the order. The president recognizes the fact that it is impossible for his organization to secure the services of resident physicians on the terms offered. He therefore proposes as a remedy to supply cities and towns "unable to secure the services of a physician for aerie physician purposes . . . with a list of physicians . . . who desire to change localities (?) and who will, if given a favorable contract, move to the community in which such aeries are located."

One can readily imagine the scientific ability of the physician who is willing to move to a new location in order to secure $2.00 per year per family as a reward for his services. Equally interesting are Grand Worthy President Hering's admissions that there is great difficulty in securing physicians willing to serve "except at such outrageous terms as will ultimately, if adhered to, bankrupt such aeries."

This is the equivalent to an official statement that this organization cannot pay physicians a decent price for their services without becoming bankrupt. If it is true that this organization can only exist by paying pauper wages to its physicians, then we can see no reason why it should not go into bankruptcy, and the sooner the better.

Another encouraging point is that the above letter shows that the organized profession is beginning to exert a real influence. We hope that every county society will take this matter up and will see that decent prices are insisted on for lodge work done for any fraternal order, or, better still, that it will persuade the entire medical population of the town not to make contracts for wholesale services that can be farmed out at retail for the benefit of a "fraternal" organization.

A correspondent also sends a copy of President Hering's circular letter and a copy of the constitution and by-laws which specifies in article 13 the duties of the "aerie physician." Section 1 provides that the aerie physician shall attend, prescribe for and perform such surgical work as may be necessary for all members of the aerie in good standing and their respective families, and that the words family or members of a family shall be understood as meaning a member, his wife and minor children and such other persons as reside with and are dependent on and are actually supported by the member. Such a definition would include not only a member's immediate family but all dependents living with him, such as father and mother, father-in-law and mother-in-law, etc. The physician is also required to attend all meetings of the aerie and report the condition of all sick members under his care. For these services he is paid the magnificent sum of $2.00 a year for each member and is subject to a fine of $1.00 whenever he fails to make a report. Section 9 of the same article provides that when any aerie has obtained a membership of over 600 it may elect two physicians, and if its membership exceeds 600 it may elect an additional physician for each 300 members or major fraction thereof. Consequently, $600, or $50 a month, would seem to be the average amount made out of this sort of practice. As 300 families would be equivalent to about 1,200 people the doctor would consequently be required to furnish all needed professional services, both medical and surgical, for 1,200 people for one year for $50 a month. Under the circumstances, it is not strange that the Fraternal Order of Eagles has found it necessary to import physicians to do its work. Unless the order has some better excuse for existence than acting as middleman between physicians and patients and furnishing medical service for an entire family at the rate of four cents a week, its further existence is not warranted. The terms offered are such as no self-respecting physician could afford to accept.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Eighth Month—First Weekly Meeting

SUBJECT FOR THE MONTH: PHARMACOLOGY AND THERAPEUTICS

DEFINITION: Relation of pharmacology to (a) chemistry, (b) physiology and anatomy, (c) pathology and clinical medicine.

NATURE OF PHARMACOLOGIC ACTION: Conditions necessary for (a) chemical, (b) physical changes in cells. Evidences of chemical changes, of physical changes. Dependence of pharmacologic action on chemic structure of drug. Results of pharmacologic action, stimulation, excitation, irritation, depression, exhaustion, fatigue, paralysis, death.

Selective action, dependent on (a) structure and concentration of drug, (b) structure and function of cell. Pharmacologic classification of drugs: (a) locally acting drugs, irritants and demulcents; (b) protoplasmic poisons; (c) muscle-nerve poisons.

ACTIONS AND EFFECTS OF DRUGS: Local, remote, systemic, direct, indirect, reflex, immediate, late or secondary.

CONDITIONS MODIFYING THE ACTIONS OF DRUGS: Size and weight; age, rules for dosage for children, old age; sex, pregnancy, lactation; pathologic conditions, fever, diarrhea, etc. Synergism and antagonism. Time of administration of drug, preparation used, rate of absorption and eliminiation, disintoxication. Idiosynerasy, susceptibility, cumulative action, tolerance, habitation.

METHODS OF ADMINISTRATION OF DRUGS: Local, preparations, effects. Oral, rectal. Hypodermic, preparations, advantages; intramuscular, subarachnoid, intracerebral and intravenous injections. Inunctions. Inhalations.

UNTOWARD EFFECTS OF DRUGS.

PHARMACOLOGIC AND THERAPEUTIC ACTIONS OF DRUGS

I. DRUGS ACTING ON NERVOUS AND MUSCULAR SYSTEMS: A. Drugs acting on muscles. Irritability, excitability and capacity for work increased or diminished. B. Drugs acting on peripheral endings of motor nerves. 1. Paralyzing nerve ends. 2. Stimulating nerve ends. C. Drugs acting on peripheral endings of sensory nerves. 1. Stimulating nerve ends. 2. Depressing nerve ends. D. Drugs acting on nerve trunks. Toxic effects, peripheral neuritis. E. Drugs acting on spinal cord. 1. Increasing irritability of anterior cornua. 2. Depressing anterior cornua. F. Drugs acting on the brain. 1. On motor cells of cortex (a) depress, (b) excite. 2. General cerebral stimulants. 3. General cerebral depressants (a) hypnotics, (b) narcotics, (c) anesthetics.

REFERENCE BOOKS FOR THE EIGHTH MONTH

Sollmann: Pharmacology. White and Wilcox: Materia Medica, Pharmacology and Therapeutics. Brunton: The Action of Medicines. Cushny: Pharmacology. Wood: Therapeutics. Hare: Practial Therapeutics. Ortner: Treatment of Internal Diseases. Forchheimer: Prophylaxis and Treatment of Internal Diseases. Publications of the A. M. A. and the Council on Pharmacy and Chemistry: New and Nonofficial Remedies, The Propaganda for Reform in Proprietary Medicines, The Broader Aims of the Council on Pharmacy and Chemistry, Physicians' Manual of the U. S. Pharmacopeia and the National Formulary.

Marriages

JOHN K. TRAIN, M.D., to Miss Lilla Comer, both of Savannah, in January.

A. V. RUTLEDGE, M.D., to Mrs. E. P. Erler, both of Denison, Texas, February 24.

WILLIAM A. LURIE, M.D., Chicago, to Miss Mabel L. Mayer of New Orleans, March 9.

THOMAS A. SPEIDEL, M.D., to Miss Marie Houghton, both of Felicity, Ohio, February 27.

JOHN TILDEN HARBOLD, M.D., Yorkana, Pa., to Miss Helen Presser, of Philadelphia, March 1.

FRANK M. LYNN, M.D., Peru, Ind., to Miss Myrtle Work, of New Richmond, Ind., February 28.

JULIUS C. LEHARDY, M.R.C., U. S. Army, to Miss Dorothea Clendenin, at Iloilo, P. I., Dec. 11, 1909.

RAYMOND VICTOR HARRIS, M.D., Savannah, to Miss Flora Middlebrooks, of Athens, Ga., January 6.

JOHN MONROE SIGMAN, M.D., Savannah, to Miss Leila K. Richbourg, of Bloomingdale, Ga., February 16.

WILLIAM OLIVER HOWARD, M.D., Elmodel, Ga., to Miss Sarah N. McGoogan, of Shannon, N. C., February 23.

JOSIAH SLICER BOWEN, M.D., Mount Washington, Md., to Mrs. Elizabeth A. Buffington, at Baltimore, February 28.

RONAYNE DE KIRKBRIDE CLEBORNE, M.D., Cambridge, Mass., to Miss Mary Mossman Thomas, at Philadelphia, March 3.

MADGE PATTON HAWKINS, M.D., Terre Haute, Ind., and William Wallace Stephens, of Memphis, Tenn., at St. Louis, February 26.

JOSEPH E. KELTNER, M.D., El Paso, Texas, to Miss Daisy Engman, of Louisiana, Mo., at Albuquerque, N. M., February 14.

Deaths

Uzziel Ogden, M.D. Victoria University, Coburg, Ont., 1855; a student of Dr. John Rolfe, and licensed to practice by the Upper Canada Medical Board in 1849; professor of materia medica and therapeutics in the Toronto School of Medicine from 1853 to 1870; professor of obstetrics and gynecology until 1887, and professor of gynecology in the Medical Faculty of the University of Toronto until 1903 when he completed fifty years as a teacher of medicine, and for three years dean of the faculty; founder, in 1876, and for many years editor in-chief of the *Canadian Practitioner and Review;* died at his home in Rosedale, Toronto, January 4, from paralysis, aged 82.

Jules Lazard, M.D. Tulane University, New Orleans, 1898; a member and formerly treasurer of the Louisiana State Medical Society, and the New Orleans Medical Society; for six years assistant to the professor of surgery in his alma mater, professor of physiology in the New Orleans College of Pharmacy; visiting surgeon to the Charity Hospital and Touro Infirmary; consulting surgeon to the Presbyterian Hospital; died in a sanitarium in Biloxi, Miss., March 4, from heart disease, aged 34.

Martin Van Buren Miller, M.D. Medical College of Alabama, Mobile, 1872; College of Physicians and Surgeons, New York City, 1878; for twelve years president of the Lauderdale County (Miss.) Medical Society; for many years president of the board of health; for eighteen years a member and for sixteen years president of the board of trustees of the Meridian public schools; died at his home in Meridian, February 21, from cholelithiasis, aged 59.

Edward C. Crum, M.D. Miami Medical College, Cincinnati, 1870; a member of the Ohio State Medical Association; died at his home in Dayton, March 4, from cerebral hemorrhage, aged 62. The Montgomery County Medical Society, at a special meeting, adopted resolutions expressing a deep sense of the loss sustained by the society in the death of Dr. Crum.

Louis Edmond Magnenat, M.D. University of Texas, Galveston, 1895; formerly a member of the American Medical Association; a member of the State Medical Association of Texas; demonstrator of surgery, chemistry and physics, and histology and pathology in his alma mater; died at his home in Amarillo, February 24, from pneumonia, aged 41.

William Everrette Dempsey, M.D. University of Louisville, 1897; of Charleston, W. Va.; formerly a member of the American Medical Association; a member of the West Virginia State Medical Association; formerly secretary of the Fayette County Medical Society; died near Jacksonville, Fla., March 2, from pulmonary tuberculosis, aged 36.

Alexander J. Dallas, M.D. New York University, New York City, 1844; a member of the Medical Society of the State of New York; said to have been the oldest practitioner of Syracuse; in 1855, president of the Onondaga County Medical Society; and twice coroner of the county; died at his home, March 4, from heart disease, aged 91.

William Stuart Patterson, M.D. Jefferson Medical College, 1888; of Pittsburg; physician to the Pittsburg Hospital for Children; a member of the American Medical Association and the American Academy of Medicine; died March 2, in Southern Pines, N. C., where he had gone in hope of regaining his health, aged 44.

James Newton Matthews, M.D. Missouri Medical College, St. Louis, 1878; the first matriculant of the University of Illinois; a member of the Illinois State Medical Society; a poet of more than local repute, and a beloved physician of Effingham county; died at his home near Mason, March 7, from pneumonia, aged 57.

Charles B. Hawley, M.D. Cincinnati College of Medicine and Surgery, 1871; a member of the Medical Society of the State of New York, and of the pension examining board of Gouverneur; and coroner of St. Lawrence county for several years; died at his home in Gouverneur, February 28, from heart disease, aged 62.

Leroy S. Hopkins, M.D. Miami Medical College, Cincinnati, 1860; (license, years of practice, Ill., 1878); of Roanoke; for 65 years a practitioner of Illinois; a veteran of the Civil War; while fishing in Biloxi Bay, Miss., February 24, was seized with apoplexy, fell overboard, and was found dead, aged 71.

James M. Ayres, M.D. Medical College of Ohio, Cincinnati, 1882; formerly of Hamilton, Ohio; a veteran of the Civil War; consul to Para, Brazil, and later to Rosario, Argentine Republic; died at his home in Johnson City, Tenn., February 28, from pneumonia, aged 70.

James Sykes, M.D. College of Physicians and Surgeons, Keokuk, 1864; of Beverly, Ill.; surgeon of volunteers during the Civil War; and then acting assistant surgeon in the army until 1868; died at the home of his daughter, in Mercedes, Texas, March 3, from cerebral hemorrhage, aged 65.

Arthur Theakston, M.R.C.S., England; a pioneer of British Columbia, Alaska and Yukon; for many years mining recorder of Circle City, Alaska, and the first to suggest a mining code for the Yukon territory; died January 24, in Dawson, Yukon, from senile debility, aged 72.

Christian C. Miller, M.D. Western Reserve University, Cleveland, 1871; of Altoona, Pa.; manager of the Miller Medical Institute in that place; a member of the Medical Society of the State of Pennsylvania; died in Orlando, Fla., March 2, from rheumatism, aged 63.

John H. Simms, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1856; a practitioner of Wilmington, Del., since 1854; surgeon of volunteers during the Civil War; a local preacher of the Methodist Episcopal Church; died at his home, March 4, aged 81.

George Edwin Ehle, M.D. Hahnemann Medical College, Chicago, 1882; of Grand Rapids, Mich.; at one time physician to the State House of Correction, Ionia; died in the University of Michigan Hospital, Ann Arbor, February 27, from chronic nephritis, aged 61.

James H. Bean, M.D. Jefferson Medical College, 1877; for several terms physician of Pocatello and Bannock county, Idaho; a member of the Idaho State Medical Society; died in the Angelus Hospital, Los Angeles, Cal., February 26, from uremia, aged 53.

Walter B. Purcell, M.D. Gross Medical College, Denver, 1890; of Tucson, Ariz.; a member of the American Medical Association; while on his way from Tucson to Twin Buttes, February 27, was crushed under his automobile and instantly killed, aged 41.

William Gleason Stone, M.D. Bellevue Hospital Medical College, 1878; from 1883-1893, assistant superintendent of the Illinois Northern Hospital for the Insane, Elgin; died at his home in Montclair, N. J., Nov. 14, 1909, from tuberculosis, aged 52.

W. C. D. Bond, M.D. Medical College of Ohio, Cincinnati, 1857; for a number of years a Baptist clergyman; a member of the local board of pension examiners of Parkersburg, W. Va.; died at the home of his son in Wheeling, February 27, aged 75.

George Lucius Beardsley, M.D. Bellevue Hospital Medical College, 1873; for 35 years practitioner of Derby, Conn., and city health officer, died in the New Haven City Hospital, February 26, from chronic nephritis and pneumonia, aged 61.

Isaac J. Daniel, M.D. College of Physicians and Surgeons, Baltimore, 1885; formerly of Battle Creek, Neb.; died at his home in Lamont, Okla., Dec. 8, 1909, from general carcinoma, for which repeated operations had been made, aged 57.

Robert Henry Golder, M.D. New York University, New York City, 1851; a member of the Medical Society of the State of New York; for fifty-nine years a practitioner of Rossville, Staten Island; died at his home, March 6, aged 89.

Gustave Liebermann, M.D. New York University, 1887; of Brooklyn; one of the founders and first superintendent of the Lebanon Hospital, New York City; died in that institution, February 28, after a surgical operation, aged 55.

Jonas D. Johnson, M.D. Eclectic Medical Institute, Cincinnati, 1878; of Wharton, Ohio; died at his home, February 26, from the effects of a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, aged 64.

Augustus Frederick Wohlfarth, M.D. (license, Ill., 1882); died at his home in Grantwood, N. J., Nov. 28, 1909, from the effects of a gun-shot wound of the head, self-inflicted it is believed with suicidal intent, aged 50.

James Wallace Milliken, M.D. New York University, New York City, 1877; a member of the Medical Society of the State of California; died at his home in Mendocino, May 27, 1909, from angina pectoris, aged 58.

Thomas A. Enos, M.D. Jefferson Medical College, 1879; division surgeon of the Pennsylvania System at Townsend, Del.; died at his home February 27, from typhoid fever, complicating pneumonia, aged 55.

James Levi Day, M.D. Washington University, St. Louis, 1873; Bellevue Hospital Medical College, 1879; a veteran of the Civil War; died at his home in St. Louis, March 1, from cerebral hemorrhage, aged 69.

Lewis Alfred Flexer, M.D. University of Michigan, Ann Arbor, 1879; formerly a member of the Medical Society of the State of Pennsylvania; died at his home in Delano, March 5, from erysipelas, aged 57.

Louis B. Hughes, M.D. Jefferson Medical College, 1902; of Hebron, Neb.; died on a Santa Fe train near La Junta, Colo., while en route to his home from California, February 18, from nephritis, aged 35.

George W. Clemson, M.D. Starling Medical College, Columbus, Ohio, 1874; formerly a member of the Ohio State Medical Association; died at his home in Thornville, March 7, from tuberculosis, aged 61.

Junius Tompkins, M.D. Missouri Medical College, St. Louis, 1855; a member of the Missouri State Medical Association; died at his home in Canton, Sept. 18, 1909, from cancer of the rectum, aged 75.

Ottoway T. Fields, M.D. Meharry Medical College, Nashville, 1893; one of the organizers of Provident Hospital, St. Louis; died at his home in that city, March 1, from cirrhosis of the liver, aged 43.

Charles W. McMillan, M.D. University of Nashville, 1900; a member of the Oklahoma State Medical Association; formerly of Harrison, Ark.; died at his home in Ada, Okla., February 23, aged 40.

Henry Clay Smith, M.D. University of Nashville, 1875; a member of the Kentucky State Medical Association; died at his home near Allen Springs, March 1, from pneumonia, aged 66.

James Mackeand Cochrane, M.D. University of Toronto, 1884; L.R.C.P., London, 1899; a fellow of the Medical Society of London, where he had resided since 1890, died recently at his home.

John M. Davis, M.D. Physio-Medical College of Ohio, Cincinnati, 1857; a veteran of the Mexican and Civil wars; died recently at his home near Staunton, Ill., from senile debility, aged 84.

Luther Ward Alger, M.D. Jefferson Medical College, 1861; for forty years a practitioner of LaCrosse, Wis.; died at his home in Everett, Wash., February 20, from heart disease, aged 72.

Alonzo D. Birchard, M.D. Bellevue Hospital Medical College, 1864; for 44 years a practitioner of Cambridge Springs, Pa.; died at his home, February 23, from angina pectoris, aged 73.

Richard M. Pancoast, M.D. Jefferson Medical College, 1845; for more than half a century a practitioner of Philadelphia; died at the Old Man's Home in that city, March 3, aged 85.

Thomas Coates Stockton, M.D. Bellevue Hospital Medical College, 1868; a pioneer practitioner of San Diego, Cal.; died at his home in that city, March 1, from paralysis, aged 72.

Adam Overfield, M.D. University of Michigan, Ann Arbor, 1870; for more than thirty years a resident of Houghton, Mich.; died at his home in Toledo, Ohio, February 27.

Mary E. McCarty, M.D. Homeopathic Medical College of Missouri, St. Louis, 1890; died recently at her home in St. Louis, and was buried in Boonville, Mo., March 4.

Fred C. Abbott, M.D. University of Louisville, 1908; an intern in the Springfield (Ohio) City Hospital; died in that institution, March 5, from typhoid fever, aged 29.

Franklin T. Cook, M.D. University of Tennessee, Nashville, 1881; for 33 years a practitioner of Taylor, Texas; died in Phoenix, Ariz., March 2, from nephritis, aged 57.

Israel S. Brault, M.D. Ecole de Médecine et de Chirurgie, Montreal, 1890; of St. Albans, Vt.; died in Montreal, February 1, from lobar pneumonia, aged 48.

Samuel Smith Brecht, M.D. Pennsylvania Medical College, Gettysburg, 1859; died at his home in Manheim, Pa., March 5, from cerebral hemorrhage, aged 79.

Charles W. Fall, M.D. Central College of Physicians and Surgeons, Indianapolis, 1889; died at his home in Fowler, Ind., February 24, from nephritis, aged 51.

George Madison Cooper, M.D. Hahnemann Medical College, Philadelphia, 1895; died at his home in Bryn Athyn, Pa., March 2, from heart disease, aged 36.

Mandeville Thum, M.D. Kentucky School of Medicine, Louisville, 1881; of Louisville; died in the Louisville City Hospital, March 4, from pneumonia, aged 52.

Robert Clay Henderson, M.D. Memphis Hospital Medical College, 1902; was shot and killed in a family feud near Zion, Miss., Nov. 28, 1909, aged 42.

John A. Craighead, M.D. Western Reserve University, Cleveland, 1877; died at his home in East End, Pittsburg, March 3, from heart disease, aged 57.

Robert Emmett Graham, M.D. University of Missouri, Columbia, 1894; died in his office in Columbia, March 3, from cerebral hemorrhage, aged 40.

Franklin Buckwater Richards (license, Ind., 1897); for sixty-two years a practitioner; died at his home in Taylorville, Ind., recently, aged 85.

Stephen R. Cook, M.D. University of Alabama, Mobile, 1890; of Epes, Ala.; died at an infirmary in Birmingham, Ala., February 26, aged 41.

Frank Rossiter Porter, M.D. New York University, 1882; of New Windsor, Colo.; died in a hospital in Loveland, Colo., March 3, aged 50.

Joseph B. Sargent, M.D. Homeopathic Hospital College, Cleveland, 1875; died at his home in Tyrone, N. Y., Oct. 4, 1909, aged 58.

Harry E. Baine, M.D. Hospital College of Medicine, Louisville, 1875; died at his home in Waco, Texas, March 1, aged 55.

Elton E. Weary, M.D. Michigan; died at his home in Cleveland, Ohio, Aug. 4, 1909, from tuberculosis, aged 51.

Phillip Rosenberg, M.D. Russia; died in Los Angeles, Cal., Oct. 28, 1909, from heart disease, aged about 59.

John Wilbur Roberts, M.D. died at his home in Alameda, Cal., March 26, 1909, from uremia, aged 74.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of State of, Mobile, April 19-22.
Am. Laryn., Rhin. and Otol. Society, Washington, D. C., April 28-30.
Arizona, Medical Association of, Phoenix, April 20-21.
California, Medical Society of State of, Sacramento, April 19-21.
Conf. State and Prov. Bds. of Health, Washington, April 28-29.
District of Columbia, Medical Association of, Washington, April 26.
Florida, Medical Association of, Jacksonville, April 6-8.
Georgia, Medical Association of, Athens, April 20-23.
Maryland, Med. and Chirurgical Faculty of, Baltimore, April 26-28.
Mississippi State Medical Association, Oxford, April 12.
South Carolina Medical Association, Laurens, April 19-21.
Tennessee State Medical Association, Memphis, April 12-14.

CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION AND OF THE COMMITTEE ON MEDICAL LEGISLATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 28—March 2, 1910

(*Concluded from page 898*)

TUESDAY AFTERNOON SESSION

Some of the Constitutional Aspects of Medical Licensure

PROF. ERNEST FREUND, Professor of Jurisprudence and Public Law, University of Chicago: The serious difficulty of the licensing system lies in the details of its working out and relates both to its scope and its requirements. The problem has generally been treated as one of legislative policy and statutory construction. Our courts have found it possible to construe the term "practice of medicine" in such a way as to exclude osteopathy, optometry, massage and Christian science treatment. In a great many cases the legislature has inserted liberal exceptions into the statute, especially so with regard to mental treatment. In other cases, and particularly with regard to osteopathy, it has prescribed special tests of qualifications. There is a double objection to a licensing law too sweeping in its terms, and not sufficiently regardful of simpler methods of treatment. One objection is that it will give color to the charge or suspicion of monopolistic exclusiveness; the other is that it will lead to exemption by judicial interpretation, or if the terms of the statute make that possible, to a breaking down of the law through non-enforcement, and the consequent toleration of a class of outlawed practitioners who might with advantage to the community be given a status of legal recognition. To discover the sound principles of medical practice legislation, a study of the history of legislation is as important as a study of judicial decisions. Under prevailing conditions in this country the preponderance of argument is in favor of the maintenance of the license system, and sound principle requires a careful definition of licensed practice, and its protection as a right of property. The whole matter of qualification, differentiation and exemption, on the other hand, is one in which there must be much of positive or conventional regulation, and in which conclusions must be reached mainly on the basis of experience, expediency and the compromise between conflicting views.

Uniform State Laws

PROF. ROSCOE POUND, University of Chicago, discussed the value of uniform state laws regulating the practice of medicine.

Importance to the Public of the Proper Enforcement of Medical License Laws

HON. HARRY OLSON, Chief Justice Municipal Court, Chicago: The American Medical Association, through its Council on Medical Education and its Committee on Medical Legislation, is rendering the public most important service by its efforts to secure a uniform and high standard of medical education and licensure in all the states. The intelligent and thoughtful layman is encouraged by the progress made by the association in this regard since 1904. The wonderful progress of medicine in the last thirty years has increased the need of a thorough education of those who contemplate its practice. The machinery to enforce the medical license laws should not be in the board of health. That body has its hands full with the questions of public sanitation, quarantine, and occasionally, it is said, politics. There should be a separate body composed in the majority of medical men, but it would do no harm to have a lawyer on it which should control not only the licensing of physicians, but the requirements of the accepted medical colleges and the requirements of preliminary education for entrance on the study of medicine as well. This body should have power on complaint and after giving due notice to hear evidence as a court and to determine whether a license, once granted should be revoked for conduct involving immorality in the practice of medicine, and such offenses as dishonesty, conviction of crime, addiction to drug habits, etc. The power the Supreme Court of this state has to disbar a lawyer on a proper showing made to him by the state's attorney, the bar association, or an individual, after notice and after a hearing of his dishonesty, is a tremendous factor in purifying the legal profession and in keeping its dishonest members within bounds. The licensed lawyers who were convicted during the ten years that I acted as a prosecutor in the criminal courts of Cook county were promptly disbarred by the Supreme Court. The physicians who served in the penitentiary promptly on their discharge resumed the practice of medicine, even though the crimes they committed involved falsification of vital statistics, and in one case, though the indictment was based on the charge of conspiracy to obtain money by false pretenses, the court and jury were of the belief that a murder had been committed. Without examining the law and decisions of the courts of this state, it would seem that the local medical profession had been derelict in the matter of its failure to present evidence to the state board of health against those members of their profession licensed in the state who ought to have forfeited their right to practice by unprofessional or dishonorable conduct.

The law of this state permitting the revocation of physicians' licenses for dishonorable conduct only applies to those physicians whose licenses were issued since 1899. As the law now stands, those licenses issued prior to 1899 may not be revoked. This defect in the law should be amended at the next session of the legislature, so as to apply to all physicians who are permitted to practice their profession in this state, no mat-

ter when their licenses were procured. The statute should be amended to state plainly that a license might be revoked for malconduct as a physician, which malconduct should be specifically enumerated in the statute. Conviction of a felony should be added as one of the causes. The responsibility for the proper enforcement of medical license laws falls first on the medical profession itself. It must furnish the initiative. The machinery is at hand now for all licensed since 1899. An amendment to the law will reach all. The state's attorney and the courts are at the disposal of physicians and the people are with them.

The Attitude of the Medical Profession Regarding Medical Practice Laws

DR. HENRY B. FAVILL, Chicago: The majority by far of the members of the medical profession have no concern or no conscious interest in medical practice acts. Elevation of the rank and file of physicians in point of fundamental education and practical efficiency clearly rests with the medical profession. Yet, as a practical feature, it is found to go only *pari passu* with public demands. The improvement in stands and requirements in medical schools in recent years have been particularly in those schools in which the nature of things would have improved under growing conceptions and higher ideals. All the leading colleges as a mere evolution of medical thought would have reached their present status without state requirements. To declare any candidate eligible who has a diploma from a recognized medical school; to recognize medical schools on the basis of fictitious presentation and fraudulent methods, and then to complete the test by an examination which any man with a good memory and no medical training can easily pass, is not only futile, but in the highest degree iniquitous. The more clearly the elements of qualification and competency can be set forth, the greater will be the influence among the minds of the public.

The early history of reform movements may be a necessity marked by arbitrary and restrictive measures. As a feature of permanent and well-constructed society, however, that custom which rests on widespread intelligence is the only custom which can be expected to endure. The merits of the suggestions which I make are three. (1) The highest degree of individual freedom; (2) the highest standard of classification as a guide to public judgment; (3) limitation of the stamp of approval or employment by the state to individuals whose qualifications have been actually determined. I believe that there is but one ground on which to justify the interest and agitation in the matter on the part of the profession. That ground is protection of public interests.

WEDNESDAY MORNING SESSION

Chairman's Address: Work of the Committee on Medical Legislation

On the third day of the joint conference, Dr. Charles A. L. Reed, Cincinnati, chairman of the Committee on National Legislation, presided, and in calling the conference to order said:

In the report of last year following the meeting of the Committee on Medical Legislation I sent to the president of the association my resignation from this office. I did so with reluctance because it involved my severance from duties which had been exceedingly pleasant. I was forced to take that step for reasons which I explained in my letter at the time. It seems, however, that the organic law of the association is so framed that there is no authority vested in the president either to accept a resignation from a committee or to fill a vacancy, and insistance on my resignation under that state of facts would have involved an arrest of the work of the committee which was exceedingly important during this year. Therefore, I reconsidered the step until June next, when the House of Delegates will be vested with adequate authority to make the necessary changes in the committee.

As to the work of the committe during the time that has intervened since the last meeting, which was held in Washington, the energies of the members of the committee have been concentrated more particularly on an effort to formulate acceptable legislation looking to the improvement of our national public health service. I say this without any reflection upon the existing national health service, or without any desire to indulge in a criticism on that service as it exists to-day; but I say it with reference to the progressive steps looking to the assembling and to the coordinating of the various national public health agencies under one organic head. It is apparent that the establishment of a *de novo* department involving an addition to the personnel of the Cabinet is not practicable as an initial step, and there seems to be a very decided feeling of opposition against an increase in the number of the Cabinet, and the tendency in executive circles in Washington is rather to diminish than to increase the number of members of the Cabinet.

The details of the work of the Committee on National Legislation will be laid before the conference to-day.

Secretary's Report

DR. FREDERICK R. GREEN, Chicago: The careful attention of members of the National Legislative Council should be given to the advisability of selecting, so far as possible, men for appointment on the National Auxiliary Legislative Committee who are interested in legislative matters and active in medical society and political work, and especially the selection of those who will give prompt attention to communications sent from the committee, the bureau or the members of the National Legislative Council. It is also advisable to consider carefully each member's record or efficiency in making reappointments or filling vacancies in order that the best and most experienced men may be retained and those who show inefficiency or lack of interest may be eliminated.

In regard to the work of the Bureau of Medical Legislation, no laws of particular interest to the medical profession were passed by the national Congress in 1909. During the spring of 1909 a number of bills were enacted into laws by the various state legislatures then in session. In Colorado, an amendment to the medical practice act was defeated. An osteopathic bill was defeated. A bill putting all hospitals under the control of the state board of health became a law. Delaware adopted an amendment to the vital statistics law which it is hoped will admit it to the registration area. A public institution bill was passed in Illinois providing for the appointment of a commission for the management of all public institutions in the state. This bill was originally drafted and endorsed by the Illinois State Board of Charities, but was considerably amended in passage. The legislature also passed a bill authorizing cities to establish tuberculosis sanatoria under certain conditions. The vital statistics bill was not passed. In Indiana a bill was adopted for the prevention of pollution of streams. In Iowa probably the most important single bill adopted was that providing for the establishment of county hospitals. In Kansas the pure food law was amended, also the law relating to water and sewage. A bill was passed making notification of tuberculosis compulsory. The principal work done in Massachusetts was to prevent the passage of pernicious bills, including optometry, antivaccination, etc.

Missouri has the honor of being the only state to pass a vital statistics bill last year. Three amendments to the medical practice act were adopted which greatly strengthen this measure. In Nebraska a bill providing for the care of indigent consumptives became a law. In New York the bills against animal experimentation which have been introduced into the state legislature were defeated. In North Carolina an optometry bill was adopted. In North Dakota an osteopathic bill became a law. In Pennsylvania an osteopathic bill, similar to bills introduced in other states, became a law. The principal fight was over a new medical practice act which after a long struggle was withdrawn. In Rhode Island an optometry bill became a law. Vermont has adopted an optometry law, also amendments were made to the medical practice act and the food and drugs act.

The secrefary then discussed vital statistics, pure food and drugs, state medical practice acts, expert testimony, sectarian legislation, reorganization of the legislative work of the association, and closed by saying that the value of the Bureau of the Council, the various state associations, and the American

Medical Association itself, will be in direct proportion to the assistance and cooperation rendered by the representatives of the different states.

The report of Dr. Green was referred to a reference committee consisting of Drs. F. A. Long, D. C. Budge, and Major M. W. Ireland. This committee subsequently reported as approving the recommendations therein contained, and on motion the report was adopted.

WEDNESDAY AFTERNOON SESSION

Report of Reference Committee on National Legislation

DR. G. B. YOUNG, U. S. Public Health and Marine-Hospital Service, presented the report of this committee, as follows:

The Reference Committee on National Legislation to which was referred certain bills pertaining to the Medical Corps of the United States Navy presented to the Council by the representative of that department, presents the following report:

The bills in question are as follows: S. 1017, H. R. 6184, Sixty-first Congress, first session. "A bill to Reorganize and Increase the Efficiency of the Hospital Corps of the United States Navy and to Regulate its Pay." S. 1015, H. R. 4305, Sixty-first Congress, first session. "Authorizing the Appointment of Dental Surgeons in the Navy." S. 4745, H. R. 16892, Sixty-first Congress, second session. "To Equalize the Pay and Allowance of Assistant Surgeons and Acting Assistant Surgeons in the United States Navy." Bill submitted in draft and not numbered: "To Increase the Efficiency of the Medical Department of the United States Navy."

Your Reference Committe has carefully considered the bills above referred to and earnestly recommends the unanimous support of the Council for these measures.

Committee on Federal and State Regulation of Public Health

This committee, composed of Drs. C. H. Cook, B. M. Caples, and W. Jarvis Barlow, reported that the bill now before Congress, asking for a department of health, will probably not be passed at the present time. The committee suggests that a bill be passed that will give recognition to the health interests of the country in the title of "a department," and that within that department there be organized an efficient bureau of health to consist of all present public national health agencies.

On motion, the report was adopted.

Report of Committee on Optometry

DR. GEORGE W. GAY, Boston: The committee believes most emphatically with the medical profession that as a rule a medical training is indispensable for a proper treatment of the eye on account of the close relationship between the eye and other parts of the body, and between eye symptoms, like headache and poor sight, and general constitutional conditions. Without medical training and with nothing but his crude untrained observation how will the optometrist be able to tell the presence of deep-seated intraocular disease? The optometrists have few, if any, proper schools and those already in existence are not officially recognized by the optical societies. The great state of New York has but one school of optometry and that is located in Rochester, the city of New York having none. Furthermore, an overwhelming majority of the optometry or optical schools consists entirely of correspondence courses of a few weeks or months, giving a degree in which the title "doctor" is apt to figure prominently. The price of these courses varies from five to twenty-five dollars and usually includes a handsomely engraved diploma. Optometry is a trade, not a profession. Like that of the optician, it is learned as are many trades, the watchmakers, for example, by working in a shop as an apprentice for a time, then perhaps as a journeyman until able to set up business for himself. No special preliminary education is required, and he earns his living while learning the business. This is a very different experience from that of learning a profession, as that of an oculist, for instance, which requires several years of preparatory study before entering the medical school term of four years, then the hospital course and the post-graduate courses, to say nothing of the considerable expense involved in this career of the practitioner.

Medical Expert Testimony

DR. L. M. HALSEY, New Jersey, presented the report of this committee. The report is considered preliminary with a view to throwing some light on a topic, which, for a long time, has engaged the attention of some of the brightest minds in the legal and medical professions.

As the result of a recent canvass made by the Committee on Medical Legislation of the American Medical Association it was found that of thirty-five states heard from only two, Michigan and Rhode Island, had statutes regulating the admission of medical expert testimony to the courts. In summarizing its work the committee offered the following suggestions:

1. Give the courts the common-law power to charge the jury on the expert evidence.

2. Also give them the authority to call experts of their own motion under certain conditions, said experts to be paid by the county in which the case falls.

3. Resort more frequently to medical commissions and to the custom which obtains in ordinary consultations.

4. Let the courts allow to serve as experts only those who are properly qualified and let them be treated as gentlemen in court, abolishing the custom, too prevalent in some places, of badgering and insult during cross-examination.

Could these suggestions be adopted, there would be little cause for complaint as to the character of medical expert evidence in our courts. Expert medical testimony would occupy a higher standard of excellence than it has ever done before, one commensurate with its importance and its universal demand.

The reports submitted by various committees were adopted.

As Secretary Green called the roll of states, each delegate stated briefly the condition of medical legislation in his state.

Report of the Carroll Fund Committee

MAJOR M. W. IRELAND, U. S. Army, chairman of the Carroll Fund Committee, gave a detailed statement of the work of this committee, giving the names of all subscribers and the amounts subscribed. The committees urged that action be taken to secure the property of Mrs. Carroll from future indebtedness, and on motion the committee was given power to act in this regard.

Report of Committee on Conclusions and Plans of Action

SECRETARY GREEN presented the following report of this committee:

1. *Resolved:* That it be the sense of this Conference that opticians be licensed as such by the state medical boards, and that Dr. Gay's pamphlet be endorsed and ordered distributed.

On motion, this resolution was adopted.

2. *Resolved:* That the Conference recommends the passage of bills S. 1017, H. R. 6184, Sixty-first Congress, first session; S. 105, H. R. 4305, Sixty-first Congress, first session; S. 4745, H.R.16892, Sixty-first Congress, second session; also the bill to increase the Medical Department of the United States Navy.

On motion, the resolution was adopted.

3. *Resolved:* That the Conference recommends the passage of the bill for the relief of the estate of late Assistant Surgeon, W. H. Miller, U. S. P. H. and M.-H. S., and recommends the passage of legislation in the interests of the personnel of the U. S. P. H. and M.-H. S.

On motion, this resolution was adopted.

4. *Resolved:* That the Conference recommends that state food laws be so amended as to provide that advertisements of food and drug products correspond with the labels; and that the drug section of the model pure food law conform as closely as possible to the national Food and Drugs Act.

On motion, the resolution was adopted.

5. *Resolved:* That the Conference heartily endorses the position taken by the President in his message to Congress in regard to national health legislation, and urges on Congress the passage of legislation looking toward such ends.

6. *Resolved:* That the Conference endorses the control by state medical examining boards the standards of medical education, and also endorses the standards of education, both preliminary and collegiate, recommended by the Council on Medical Education, but it is the sense of the Conference that adherence to these standards should not be allowed to result in the destruction of a single sectarian board.

On motion, the resolution was adopted.

On motion of Dr. Halsey, the report was then adopted as a whole.

The conference then adjourned *sine die*.

AMERICAN CONFEDERATION OF RECIPROCATING MEDICAL EXAMINING AND LICENSING BOARDS

Annual Meeting, held in Chicago, March 3, 1910

DR. W. A. SPURGEON, President of the Indiana State Board of Registration in Medicine, in the Chair

Out of a membership of fourteen states, eight states were represented and three reciprocating states, not in membership, however, were represented. Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, is the secretary of the confederation.

President's Address: Work of the Association During the Past Ten Years

DR. W. A. SPURGEON reviewed the work of the association for the past ten years, showing that much progress has been made toward establishing reciprocal registration between nearly all the states. He pointed out the necessity for such an arrangement, and held that the professional liberty or freedom obtained in reciprocity must be regarded as a reward of merit, and that it becomes a most effective incentive to high uniform attainments on the part of the individual physician as well as on the part of the examining board, and that medical legislation has accomplished much good in the unification of the profession in the elevation of standards of medical education and premedical training, and in the elimination of inefficient medical colleges, fakers and ignorant pretenders. The absence of uniformity of requirements of the medical laws of the country is one of the chief defects and objections to such laws.

Dr. Spurgeon recommended the appointment of a committee on uniform legislation, this committee to be instructed to formulate an address to the governors of the several states and territories, asking the executive to appoint representative men in his state conversant with medical legislation and not necessarily physicians to cooperate with this committee in the formulation of a model medical bill, to be submitted to the legislatures of the states and territories, to the end that uniform requirements may be obtained in all the states. He also recommended the appointment of a standing committee on inspection and rating of medical colleges. Specifically stated, it shall be the duty of this committee to determine the relative educational value of the medical educational institutions of the country, and also of the preliminary training schools, report to the confederation annually, and recommend standard minimum requirements that shall form the basis of its work. This committee should be distributed geographically and should represent the several so-called schools of medicine recognized by the confederation. The active work of investigation and inspection should be delegated to an executive sub-committee to be chosen by the original committee. The annual report of this committee should be thoroughly discussed by the confederation and the report as finally adopted to be spread on the records of the confederation and a copy sent to the various medical examining boards, with the view that the boards will unite in adopting the findings of the confederation.

Report of Secretary

DR. B. D. HARISON, Detroit, reported that the following states are now in membership in the association: Georgia, Indiana, Iowa, Kansas, Maryland, Michigan, Nebraska, Nevada, Ohio, Oklahoma, Utah, West Virginia, Wisconsin and North Dakota. The following states are on a reciprocal basis: Arkansas, Colorado, Delaware, District of Columbia, Illinois, Kentucky, Louisiana, Maine, Minnesota, Missouri, North Carolina, New Hampshire, New Jersey, New York, South Carolina, Tennessee, Texas, Vermont, Virginia and Wyoming.

During 1909, 1,009 reciprocal registrations were granted, 933 under Qualification I, and 76 under Qualification II. This report does not include reciprocal registrations that may have been made in the following states, from which a report was not received: District of Columbia, Georgia, Kansas, Missouri, Nebraska, South Carolina, Tennessee, Virginia and West Virginia.

Commitee on College Rating

The committee to which was referred the address of the president recommended the appointment of a standing committee on college rating, consisting of seven members, representing the several colleges of medicine recognized by the confederation, to be known as the "Committee on College Standing and Rating." It shall be the duty of this committee to investigate, by inspection or otherwise, the medical institutions and secondary schools of the country, and to report its findings to the confederation from year to year. The report of this committee when adopted by the confederation shall be available for the information of the state boards of the country. The president of the confederation shall be a member of this committee.

Committee on Legislation

The committee also recommended that each state examining board be requested to appoint a delegate, and that the governor of each state be likewise requested to appoint a delegate, not necessarily a medical man, and that these delegates shall compose a standing committee on legislation. It is to be the duty of this committee to prepare a uniform medical law, with a view to securing its adoption by the legislatures of the several states.

The report of the committee was adopted.

Investigation of Methods of Examining Boards

On motion of Dr. Herbert Harlan, president of the Maryland Board of Examiners, the Committee on College Rating was instructed to consider the advisability of making an investigation into the methods employed by the various examining boards.

It was also decided to appoint a committee looking toward effecting an amalgamation of this confederation and the National Confederation. This committee is to consist of three members, two of which shall be the president and secretary of the confederation. (The president was empowered to appoint these committees *ad interim*.)

Officers Elected

Dr. Spurgeon was reelected president and Dr. Harison was reelected secretary of the confederation. The time of meeting for next year was left to the discretion of the committee on amalgamation, inasmuch as it seemed inadvisable to set any time of meeting without consultation with the national confederation.

TRI-STATE MEDICAL ASSOCIATION OF THE CAROLINAS AND VIRGINIA

Twelfth Annual Meeting, held in Richmond, Va., Feb. 15, 1910

DR. JOSEPH WHITE, Chairman of the Committee of Arrangements, Presiding

The officers elected were given in THE JOURNAL, Feb. 26, 1910, p. 716.

Addresses of Welcome

Hon. William Hodges Mann, Governor of Virginia, delivered the address of welcome, which was responded to on behalf of the society by Dr. Hubert A. Royster, Raleigh, N. C.

Education of the Public Regarding Cancer

The president, Dr. LeGrand Guerry, Columbia, S. C., delivered an address on "Some of the Things the Profession Can Do in Regard to Cancer." The following papers on cancer were also read: Dr. Southgate Leigh, Norfolk, Va., "Cancer Education," and Dr. Stephen Harnsberger, Catlett, Va., "Cancer in Virginia—Trustworthy Vital Statistics the Foundation of Public Health—The Organization of a Cancer Association in Virginia."

At the suggestion of Dr. Leigh a resolution was adopted to the effect that the association should take some action in connection with the dissemination among the public and the profession of the proper views in regard to cancer.

A committee of six was appointed—two members from each of the three states—to take the matter up with the state boards of health, and any other officers in authority, whom they thought best, to act with the society in this important matter.

The Religious Press and Quackery

DR. ROLFE E. HUGHES, Laurens, S. C., read this paper, at the conclusion of which it was unanimously resolved that a copy of the paper be sent to the editor of every religious paper in the three states.

Annual Oration: Contributions of Animal Experimentation in Medicine

DR. HENRY A. CHRISTIAN, Boston, read this paper to a packed house, a large number of laymen being present:

This subject was selected because much of the recent progress in medicine has been founded on the results of animal experimentation, and because it is important that the medical profession should recognize this fact since an active campaign has been developed against animal experimentation. The attacks are best met by spreading among the people general information about the aims and ideals of medicine, its methods and the part played by animal experimentation in them. This must be done by the physicians, and to do it they must appreciate the value of animal experimentation to clinical medicine. This paper deals not with the individual contributions of animal experimentation to medicine, but emphasizes the value of animal experimentation as a method which has served, and is serving, to widen the scope of investigations in clinical medicine. From the use of the method of animal experimentation along with other methods of investigation, practical knowledge has come which has increased the power of physicians in dealing with disease.

The study of epidemic cerebrospinal meningitis during the period of a hundred years yielded much knowledge of the disease, but not until the method of animal experimentation was utilized was there discovered a satisfactory method of treating the condition. In this disease discovery of a serum resulted from the method of animal experimentation, and the use of this serum has reduced the mortality from some 80 to about 20 per cent. Nephritis is an example of a chronic condition whose study has been aided much by animal experimentation in recent years. Finally, the result of the recent successful production of anterior poliomyelitis in monkeys will probably be knowledge of facts which would be likely to serve in the prevention of the spread of epidemics of this condition. Moreover, an opportunity may be furnished by this experimental poliomyelitis in monkeys to study the results of various forms of treatment of the secondary paralysis of the disease. Even if the concrete advances already made by animal experimentation were effaced, still the potential value of the method would fully justify its use.

Hereditary Criminals—The One Sure Cure

DR. CHARLES V. CARRINGTON, Richmond, Surgeon to the Virginia Penitentiary, went fully into the profound influence heredity excited on the lives of every one, saint and sinner. The powerful effect of environment on criminals was made clear. The paper was full of facts and figures, showing the steady increase of crime throughout the country and in Virginia. The "one sure cure," restriction of procreation in the idiot, imbecile, habitual criminal, and insane person, was fully gone into, and it was clearly shown that vasectomy in the male, and resection of the Fallopian tube in the female, was the safe, sure and right solution of this problem. A bill is now pending in the Virginia legislature to prevent procreation by confirmed criminals, imbeciles, rapists and insane persons.

Dr. Carrington's paper received close attention and the following resolution was unanimously adopted:

Resolved: By the Tri-State Medical Association, that it unanimously endorses the proposition covered by Dr. Charles V. Carrington's paper on "Hereditary Criminals—the One Sure Cure," and respectfully urges the Virginia legislature, now in session, to pass the bill to prevent "procreation by confirmed criminals, idiots, imbeciles and rapists."

Another resolution was adopted, in connection with this matter, appointing three members each from the states of North and South Carolina, to see what action could be taken in those states in regard to the criminal insane.

CHICAGO GYNECOLOGICAL SOCIETY

Regular Meeting, held Feb. 18, 1910

The President, DR. CHARLES B. REED, in the Chair

Carcinoma of the Uterus

DR. EMIL RIES: The specimens of carcinoma of the uterus here shown illustrate the perniciousness of the altogether too common treatment by means of local applications employed by many general practitioners, in the absence of a correct diagnosis. One patient, aged 50, was treated locally for 7 months, when an operation was performed. She was alive and well 2 years later. A second patient, aged 57, had been treated locally for a year, and is now alive and well, 3 years after operation. A third patient had uterine hemorrhages for 2 years, and on examination it was found that the carcinoma involved the entire body of the uterus. The organ was removed, but an extensive recurrence was noted 4 years later. In a case of carcinoma of the cervix occurring in a syphilitic weighing 250 pounds, all the glands were removed together with the uterus and adnexa, and 6 months after the operation the patient was in good health with no sign of recurrence. A woman, aged 57, had glandular carcinoma of the cervix. The uterus, tubes, ovaries, ligaments and all the lymph vessels and glands were removed thoroughly. The operation was done 9 years ago, and the patient is still in good health. The diagnosis was confirmed microscopically. I think that this proves conclusively that even in cases of glandular carcinoma the diagnosis need not necessarily be grave.

Pregnant Cornu of Uterus

DR. LESTER E. FRANKENTHAL: I removed a pregnant cornu of the uterus from a woman in whom the corpus luteum was on the side corresponding to the cornu, showing that the transmigration of the fecundated ovum is not necessary, and that fecundation may occur on the same side.

Missed Abortion

DR. LESTER E. FRANKENTHAL: The patient menstruated last June 10, 1909. Early in November, she had uterine hemorrhages, and on examination I found the uterus to correspond in size to a fourteen or sixteen weeks' pregnancy, although it should have corresponded to a twenty or twenty-two weeks' pregnancy. Inasmuch as the husband of the patient was syphilitic, I gave large doses of iodid of potassium, and the bleeding stopped. Early in February, I called on the patient to leave final instructions and on inquiry she told me that the baby was very lively. When I examined the uterus, however, I found that it had grown smaller, and, believing that the child was dead, I did a tent dilatation, removing the secundines with the fetus, which was well-preserved and evidently was no more than eight weeks old. The patient had carried the fetus in the uterus for twenty-seven or twenty-eight weeks after its death, and yet the fetus was well preserved.

SYMPOSIUM ON ABORTION

Legal and Moral Aspect of Abortion

MR. SIGMUND ZEISLER: According to the common law it is criminal to produce abortion even up to the time of quickening or with the consent of the mother. To produce miscarriage prior to the time of quickening is a misdemeanor. The statutory law of this country has made abortion or miscarriage of pregnant women in any stage a crime. The law also provides that the woman must be pregnant with child, so that a *corpus delicti* must be established. Unless this is done, it is impossible to be guilty of abortion or the crime of attempting it. The punishment is the same in either case. In Illinois, it would not make any difference how long the fetus had existed. To cause the destruction and expulsion of the fetus is to commit abortion, and that is a crime. The law provides that "unless the same is done as necessary for the preserva-

tion of the mother's life." This does not mean that any one can produce the abortion and say it was necessary to preserve life. If a reputable physician declared under oath that he aborted a woman to save her life, his statement would not be questioned. The presumption is that unless the one who produces the abortion is a reputable physician, the act is not committed for the purpose of saving life. It might be argued that if an abortion be induced in a woman who is insane with the fear of detection of being pregnant, it is done to save her life, because otherwise she would commit suicide. That would not be an offence, because it can never be told whether a woman threatening to commit suicide will really do so. Again, an attempt to produce abortion may fail, but still the attempt is punishable under the statute and constitutes the crime of abortion. There must, however, be some aptitude of the means employed before a man can be adjudged guilty of an attempt to commit this crime. If a man advised a woman to take Huyler's chocolates, although he might intend to commit the crime of abortion, still he would not be guilty. On the other hand, if a man advises a woman to take an apt medicine and she does not take it, he is guilty of an attempt to produce abortion. Under the statute, the woman who consents is not guilty of producing abortion, but there is a satute which speaks of an accessory before the fact, and it is my opinion that a woman who consents and aids in the production of an abortion on herself is guilty as an accessory, hence is a principal under our statute. There is also the statute of conspiracy, which provides that if two or more persons shall combine or conspire to do an illegal act, they shall be guilty of conspiracy. This makes the woman equally guilty with the operator.

As to the moral aspect: It is wrong to commit abortion. It is a violent interference with normal physiologic processes. It is fraught with danger to life or at least health. In the case of married people, if abortion were to be sanctioned, it would be an encouragement to race suicide. In the case of unmarried women it would encourage licentiousness. However, there are circumstances which would prompt one not to condemn a woman. If I could do it and others would help me, I would try to fight that prejudice which generally and under all circumstances condemns the unmarried woman. We ought to educate society not to indulge in this anathema of every woman, but to inquire into the circumstances of each case, and extend forgiveness, indulgence, helpfulness, to every woman who richly deserves it. Unfortunately, that is not the view of society at the present time.

Methods of the Professional Abortionist

DR. RUDOLPH W. HOLMES: The professional abortionist, transgressing one law, finds that he must defend his position by various other criminal acts, by knavery and revolting manifestations of cupidity. The perpetration of one criminal abortion obtunds the moral sense and leads to others. The risks of prosecution, and the prolonged incarceration, if convicted, demand excessive rewards—fair compensation is inadequate, so he secures large compensation, too often by intimidation, coercion, and even robbery. The criminality of the professional abortionist is not composed of the production of illegal interruptions of pregnancy alone, but includes all the machinations stimulated by his avarice. It is possible to view this question from two points: One, the discussion of the frauds, chicanery employed in obtaining clientele, and securing the rewards; secondly, the methods employed in the production of the felonious attack.

There are three kinds of abortionists: First, the young man, starting in practice, who is inveigled into committing his first offense in his pressing need of money; secondly, the man who stands fairly well in his community with a certain clientele, and who largely is engaged in ethical practice, but who relieves his patients in order that he may hold his families; thirdly, the professional abortionist, who works for revenue only. There are too many members of the second class, who even may be members of the local, state and national medical societies.

Professional abortionists have a trust, have, like the financial organizations, a strong legal department, a central office, a manager who attends to routine matters; this organization is for offensive and defensive warfare. The legal department, skilled in all devious means of combating a prosecution, experts in medical matters concerned, is able easily to outweigh the young Assistant State's Attorney; defenses are prepared for every contingency. Alibis, bribery, perjury, are ready in rebuttal.

Until three or four years ago, the professional abortionists advertised most extensively in the daily press; this was stopped by the postal department on evidence presented by the Committee on Criminal Abortion of the Chicago Medical Society. In the old days, one paper had a department whose sole business was to look after the abortion advertisements. The fees for doing abortions vary from two dollars, in the hands of the poorest midwives, up to any sum possible of securing by contract—after that, many abortionists use devious means of obtaining additional compensation, even to blackmail. As chairman of the abortion committee, previously mentioned, repeated examples of the chicanery, fraud, robbery, blackmail and perjury came to my attention. The advertising physician tries to make a charge of from 50 dollars to 75 dollars; a similar fee is charged for the first week's attendance at a "maternity home," of which there are many in Chicago. Bath parlors give local electric treatment, with or without general baths, for two or three dollars. Abortionists frequently work in pairs; one makes the arrangements, and the other performs the operation—often in such a manner that the victim cannot see who performs the operation. The popular way for the woman abortionist is to operate under two names—her own and that of some retired prominent operator.

A discredit to the medical profession is brought about by the fact that some physicians in good standing have a working agreement with abortionists to attend patients after the operation has been performed, thereby assuming a responsibility, and becoming virtually, if not actually, accessories after the fact. They lend themselves as character witnesses in trials, and prostitute themselves by appearing as experts to befog the situation with specious arguments, or even perjury.

The methods employed in producing abortions are of comparatively little value in comparison to the frauds perpetrated by the abortionists. However, the methods commonly employed by reputable men in inducing premature labors are resorted to by the criminal operators. The rupture of the membranes, introduction of rubber catheters, and tents, are the usual operative means; drugs are frequently given by those too fearful to employ instruments, knowing that the money is given, and that with high probability, no effect will be produced. Irrespective of the method employed, the operations are generally performed without any regard to the observance of surgical cleanliness, either of patient or instruments; as a result, infections are frequent. Death is not solely sequential to an infection, but also may be the result of uterine and vaginal perforations. From 40 to 60 deaths by abortion come to the attention of the coroner each year; these surely must be but a fractional portion of those occurring from this cause.

The Forensic Diagnosis of Criminal Abortion

DR. MAXIMILIAN HERZOG: The forensic diagnosis of criminal abortion has to establish two points; namely, that a gestation has been going on, and that it has been intentionally interrupted by means adapted or supposed to be adapted for this purpose. But whether the object of a criminal abortion is alive or dead, the fact of the preceding pregnancy has to be established by objective findings and not by mere subjective statements, because these may be entirely unreliable. A woman may have some motives for simulating a previous pregnancy, or she may have been mistaken about her condition. It is a well-known fact that cessation of the menses is not at all a reliable sign of pregnancy, but that a guilty conscience and purely nervous influences may be responsible for it. It is to-day a principle of the law, not merely in suspected criminal abortions, but in other cases of forensic bearing, that diagnosis of pregnancy to be fully accepted has to be based on objective findings. However, even this evidence is available only a short time after an abortion has occurred. When the latter has not led to a local or general infection, or

to any other more severe disturbance, and when the abortion has occurred in the earlier months of gestation, all objective signs will disappear within one or two weeks. When, however, the object of an abortion dies shortly after the latter has occurred, it is comparatively easy to establish the fact of the previous pregnancy interrupted by an abortion. It is a different thing, however, to establish the fact that the woman came to her death in consequence of a criminal and not of a spontaneous or accidental abortion. According to the statistics of various observers, spontaneous abortion occurs in 1 out of every 4 to 8 pregnant women, and these figures undoubtedly do not include the abortions in women during the first few weeks of pregnancy. While criminal abortion is unfortunately very common and has been practiced extensively for many centuries among civilized as well as among uncivilized nations, it is generally only taken notice of among the former, if it leads to a fatal issue. It is impossible, therefore, to give any reliable statistics, but we must assume that it is much more common than can be proved, and that even of undoubted cases only a very small proportion of the guilty are punished.

When an abortion is induced in a woman, not on account of well-recognized medical indications, but for reasons which stamp it a criminal case, this is frequently done by incompetent persons, hastily, and not in the most approved aseptic manner, safeguarding the best results as to the health and life of the woman; hence, even if a fatal infection does not occur, the products of the conception generally come away piecemeal, portions of the placenta generally remain behind, cause long-continued hemorrhages, and lead to curettage by skilled and reputable practitioners.

The forensic diagnosis of criminal abortion must establish that there recently existed a pregnancy which was interrupted by an abortion. This is usually comparatively easy, provided that uterine curettings can be obtained or a proper post-mortem examination made. To establish from objective findings that the abortion was due to mechanical means, criminally employed, is difficult, even when a strong suspicion exists, and when a fatal issue was due to sepsis. When the abortion was due to the use of medicinal agents, these may be identified by the toxic symptoms to which they give rise, and by chemical tests. However, there is no set of symptoms by which a spontaneous abortion can infallibly be distinguished from one following mechanical interference.

Discussion on Abortion

DR. CHARLES S. BACON: Why is there a distinction between fetal life and post-natal life? Why is not feticide the same as murder, and why should not the law recognize this by meting out the same punishment in both cases? Another question I would like to bring up is: What are the limits of therapeutic abortion? According to the law, it is recognized only when it is necessary to save the life of the mother. As a matter of fact, almost all therapeutic abortions are done to save the health of the mother. Therefore, when a physician operates for that reason, he is breaking the law. The law should make a provision for this, and not make us unwilling lawbreakers.

DR. RACHELLE S. YARROS: We are frequently far too hard in some cases. I have frequently thought that instead of taking the woman and punishing her in every possible way as the responsible person, why not also punish the man? Society should in some way make him responsible, at least to the extent of having him carry the burden by making him legally the father and forcing him to support the child. I am sure that if this were done some men would not be placed in that position; and many women would not think of having an abortion performed if they had support from the man. The man who has seduced the girl knows that she will either have an abortion or, if not, that she will suffer. He should be made responsible. I think that with proper education on the subject, showing women the danger they are in, they will control themselves more.

DR. EFFA V. DAVIS: I was glad to hear Mr. Zeisler's exposition of the law and his discussion of the moral side. We must educate the public. People should be taught what is right and just about sexual relations. As we have talked so much about the illegitimate child and felt so keenly that it is wronged, why should we not from now on labor to make the illegitimate child a legitimate child by making its father its legal father? I believe that the birth of a child of healthy parents in the unmarried state should constitute a marriage.

DR. EFFIE LOBDELL: Mr. Zeisler struck the keynote of the whole question when he spoke of the attitude toward the woman. It seems to me that the only way in which a cure can be brought about is by placing the matter on an economic basis; that is, a consideration of the laws of the community, of the laws of life, and also the value to the community of a cure of these irregularities.

DR. RUDOLPH W. HOLMES: Three or four years ago there was a case of prosecution for the production of abortion in the criminal court of Illinois. The Assistant State's Attorney told me that after carefully looking through all the records he could not find a single instance of conviction for the production of abortion.

MR. SIGMUND ZEISLER: I do not recall that there is a definite provision in the criminal code of Illinois on the subject of feticide. I presume that the legislature has been under the impression that most feticides are coincident with the producing of abortion. Of course, there may be feticide other than in the shape of miscarriage. A child is recognized as a living human being after the quickening period, and is capable of being appointed administrator or executor of an estate. The destruction of the fetus in any way separate from abortion is, if not a crime, at least a misdemeanor. Under the common law it was a criminal act, and I think that it is still so at the present time. If not, Dr. Bacon is right in stating that that is a defect in the law. Every profession has its code of ethics, and I would not presume to dictate to physicians what professional ethics would make it their duty to do under certain circumstances. However, I do not believe that under any circumstances a physician should consider it his business to aid in the covering up of crime, if called as a witness in court. He should not attempt to abuse any so-called privilege, but should freely tell the truth.

Some one has referred to the innocent child as an important factor. That also I discussed. It is the child that we do consider when we say that future generations must be provided for. It is true that the woman is made to bear almost entirely the consequences of the illicit intercourse between man and woman. I regard that as a great reproach to our conventional morality and to the law, and the law is very deficient in that matter. If the man can be pointed out with any degree of certainty as being the father of an illegitimate child, there is a proceeding known as bastardy proceeding, through which he can be compelled to pay to the mother for the support of that child the sum of fifty dollars a year for nine years. But why this ridiculous sum? Why not provide that the child shall be an heir of the father just the same as the child born in wedlock? Why not compel the father to support the child according to his means? If not to provide any support for the unfortunate woman will deter her from illicit intercourse, then to provide that the father must recognize the child and make it his heir may deter the man from illicit intercourse; and I am heartily in favor that this latter view should prevail in the law.

DR. CHARLES B. REED: What is the attitude of the legal profession toward the physician as an informer or as an instigator of action in cases coming under his notice?

MR. ZEISLER: I do not know what physicians' ethics are, but I should say that the physician who obtains evidence in the course of his practice of the fact that an abortion has been committed should by all means place his information in the possession of the state's attorney.

DR. MAXIMILIAN HERZOG: Dr. Bacon suggests that we make the production of abortion murder. Murder, of course, consists in the killing of a human being. To look on an embryo, four weeks old, as a human being seems to be an exaggerated view. Again, the law allows murder only in the act of self-defense, whether against individuals or nations. How can we make the crime of abortion murder? That would prohibit the performance of an abortion under any condition, and we would have to accept the standpoint of the Catholic Church, that a living child must not be killed, no matter what the circumstances may be.

As to whether a physician who gains knowledge of an abortion having been performed should report to the state's attorney, the German law places the physician in his relation to his patient in the same position as the confessor stands to his parishioner. Everything he learns is secret, and the German law makes the woman just as responsible for the abortion, whether she does it alone, or whether she consults some one. It makes her punishable under every condition.

There is a way of doing away with illegitimate children—the plan which is prevalent in Japan. There, if a man becomes a father of an illegitimate child, he adopts the child under the general system of Japan, and takes the woman into his own household. Any man who is the father of an illegitimate child, and who has the feelings of a father, will take care of that child and of the woman. That can be regulated by law.

CONFERENCE ON HOSPITAL APPROPRIATIONS

Held under the auspices of the Medical Society of the State of Pennsylvania, at the College of Physicians, Philadelphia, Feb. 4, 1910

The Chairman of the Committee, DR. WILLIAM L. ESTES, in the Chair

DR. THEODORE B. APPEL, Lancaster, president of the Medical Society of the State of Pennsylvania, in explaining the object of the appointment of the Committee on Hospital Appropriations said that within a few years appropriations asked for by charitable institutions not under state control have increased from $18,000 to almost $5,000,000; that charges had been made that money had not been appropriated in a proper way, and that hospitals were created and developed on state appropriations when there was no demand for them and no local support given.

GEN. FRANK REEDER, Easton: I believe that much of the abuse connected with state appropriations is due to the fact that until 1893 the appropriations were all subject to the judgment of the State Board of Public Charities. Since then the exercise of the veto power of the governor has led the legislators to feel that they may appropriate any amount and look to the governor to save the state from extravagance. The power of the governor being therefore firmly established, no hospital after that date has submitted to a reduction of its claims by the State Board of Charities. I believe that the first thing to do is to put into the hands of the State Board of Public Charities a positive and final veto power. I would give to that body the power which the supreme court accords to a jury.

DR. GEORGE WOODWARD distributed a pamphlet written by Mr. Frank J. Firth entitled "Grants of Public Funds of the State of Pennsylvania in Aid of Hospitals that are Privately Owned and Managed," in which was considered the policy adopted by the State of Pennsylvania, and facts noted as to the policy governing in other important neighboring states. "The State of Indiana does not subsidize or grant public funds to any private institution." "Michigan has never subsidized any private institution in the state, of any character." In Massachusetts: "The state does not contribute regularly to the support of any private hospitals. . . . Special cases sometimes arise where the legislature deems it wise to grant aid to private institutions, but, of course, they are very rare." In New York: "General hospitals receive no appropriations from the state itself, but are authorized to receive appropriations from counties, cities, towns and villages. As a rule, such appropriations are made on a *per capita* basis." "The state of Illinois does not extend financial aid to hospitals and charitable institutions not owned and operated by the state."

MISS BANFIELD, Superintendent Polyclinic Hospital, Philadelphia: I think the remedy in the dispensary abuse is to have the dispensary physician paid. In this connection state aid might come in. I think we have a right to receive state aid to keep a man at work as part of the body politic.

MR. FRANCIS A. LEWIS, Philadelphia: I represent a hospital which has never asked for state aid, yet when a bequest is left to the hospital we are compelled to pay a 5 per cent. collateral inheritance tax. If the Commonwealth of Pennsylvania needs such bequeathed money for carrying on the expenses of the state, well and good; but, if a hospital is to be docked 5 per cent. in order that the money may be given to some institution for which the testator did not intend it, it seems to me wrong. I believe that no state aid should be given to any institution not controlled by the state which does not provide for two-thirds of its current expenses. This policy also, I think would reduce the number of hospitals and they would be stronger and better managed. Further, I believe that distribution should be made on some sort of *per capita* basis. Political influence would then not have to be sought, and this would prevent state appropriations drying up the wells of private charities. I think no appropriations should be made for buildings; only for maintenance.

MR. THOMAS R. MCDOWELL, of the Legislature of Pennsylvania: I believe that we ought to revive and enlarge the powers of the State Board of Public Charities, and that in the judgment of this board is the best safeguard under our present system. I believe, however, that wherever the state money goes there ought to be representation on the part of the state. A *per capita* basis carries with it the danger of padding the rolls.

DR. J. M. BALDY, Philadelphia: This whole question of state aid is improving every day, and it is not fair to burden this magnificent charity with isolated cases of wrong which are of the past. It is impossible for any individual hospital to divert one penny of appropriated money. If the powers of the State Board of Public Charities are revived they should also be enlarged, and the board should be made a paid body of men who shall have no other business than the investigation of reports from institutions seeking state aid. A *per capita* basis would defeat the very object of our effort; every bed would be reported occupied and graft would be engendered.

DR. C. E. THOMSON, Scranton: I take issue with Dr. Baldy and think that the *per capita* basis is the only proper one on which to work. Moreover, Dr. Baldy's statements are not consistent. He says the hospitals are absolutely square, and then he says that if they are run on a *per capita* basis every bed would be reported occupied. To show how the physicians are faring in this deluge of appropriations, last year nine very good physicians were starved out of Scranton. Of all the hospital abuses we know of the Wills Eye Hospital is responsible for the worst.

DR. S. LEWIS ZIEGLER, Philadelphia: As a representative of the Wills Eye Hospital, I am sorry to state that there are so many persons in Scranton who are untruthful concerning their financial standing. We have no pay patients, the hospital is purely a charity organization, and a person must commit perjury to be entered. The criticism has been made that hospitals which have private rooms should not receive state aid. Were it not for the income from the private rooms of some hospitals their charity work would have to cease.

DR. L. H. TAYLOR, Wilkes-Barre: There is much truth in what Dr. Baldy has said. There should not be given exactly the same amount to every hospital throughout the State. I believe that hospitals receiving state aid should be open to inspection at any time and that appropriations should be made on the basis of what the hospital is doing, its cost, etc. I believe that the State Board of Public Charities should have its powers enlarged and that its members should be paid.

DR. W. S. ROSS, Altoona: The question is largely one of indigency. There is a large population able to pay a reasonable sum toward the maintenance of a hospital. Any rule would sometimes fail, but it is better to let a rich man in than to keep a poor man out.

DR. SHILLITO, Pittsburg: One of the greatest hospital abuses is in large corporations sending their injured into the hospitals and expecting them to be cared for at the actual cost.

DR. FREDERICK W. COOVER, Harrisburg: In our treatment of the men from Steelton bills are rendered the firms. To check the charity abuse we use the card system.

MR. S. B. BENNETT, Pittston: To compensate the members of the State Board of Public Charities would lower its standard. A better plan, it seems to me, would be the appointment by the board of an assistant to the general agent.

DR. J. M. GAY, Philadelphia: I would suggest that no more hospitals be chartered unless it is proved that they are needed; also, that no money be appropriated for buildings. The *per*

capita basis would be a better proposition if it were operative on the plan of allowing a definite rate *per diem* for every day patient.

MR. G. E. FARQUHAR, Pottsville,: If proper attention were given by the legislature to the recommendations of the State Board of Public Charities, justice would be done to every hospital in the state. The opinion and work of the board should be made authoritative.

MR. GREENWOOD, Coatesville: If, as has been suggested, appropriations were made only to hospitals in which two-thirds of the cost were already provided, a large population would be without medical attention. Mr. McDowell says that the state ought to have representation where appropriations are made, but I think the personnel of the hospital boards had better be left to the community. The *per capita* basis of appropriations would not apply because of the possibility of its variation. Our *per capita* cost has been as low as $1.30 a day; with but a few in the hospital it might run to $2.50.

DR. E. V. SWING, Coatesville: There seems to be a difference of opinion as to what constitutes an indigent person. A man making $1.25 or $1.50 a day is barely able to feed and clothe his family and is properly a ward of the state when needing hospital treatment.

DR. FRANK HARTMAN, Lancaster: I believe that by putting the work of the State Board of Public Charities alongside the work of the auditor-general there would be no difficulty in ascertaining the amount to which each hospital is entitled.

DR. A. B. HIRSH: There should be a united effort by all institutions through some such plan as a central bureau to get rid of the frauds who apply for treatment at dispensaries and hospitals. Our State Board of Public Charities should have the power, such as the New York board has, of controlling the creation of new dispensaries and hospitals.

REV. MR. ROTE, Pittsburg: One feature not sufficiently emphasized, I think, is that we cannot send out and get a card account concerning an applicant for hospital treatment. We must act on the instant, and if he prove to be a fraud, get rid of him afterward if we can. There should be some rule on which the actual *per diem* cost of a patient shall be based.

DR. A. M. EATON, Philadelphia: The method mentioned by Dr. Hirsh could be adopted in large hospitals. At the first visit the patient should be accepted and his financial condition ascertained. One man representing himself as indigent I learned was the owner of fifteen two-story houses. A woman in my clinic wore diamonds for which she admitted she would not take fifteen hundred dollars. We should petition the legislature to make it a misdemeanor for a person falsely to represent that he is indigent in order to obtain free medical service. One difficulty is in the fact that many hospital boards desire a large number of patients entered on their reports.

DR. P. Y. EISENBERG, Norristown: I believe that the State Board of Public Charities should have additional power and that their recommendations should be final. A member of our board has made the suggestion that an account be opened for every patient, that the hospital shall collect something from the patient if possible; and that on the basis of the account the state may say how much it will give toward paying the cost of that particular patient.

DR. TAYLOR, of Wilkes-Barre, offered the following resolution:

Resolved: That in the sense of this meeting a definite plan should be adopted by which appropriations of state money to charitable institutions should be equitably and justly distributed, and to this end we recommend that the powers of the State Board of Public Charities be enlarged, and that a thorough inspection of all institutions receiving state aid, either in whole or in part, should be made by the State Board of Public Charities and that appropriations should be made by the legislature only on recommendations of said board."

DR. WILLIAM T. SHARPLESS, West Chester: I am in favor of the resolution offered by Dr. Taylor. It also seems to me fair that if the state appropriates money for hospitals it should have something to say about the management. Further, I think we are all agreed that we should like to see the powers of the State Board of Public Charities increased.

The resolution was not voted on, but was referred to the committee on hospital appropriations.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 4-5. Sec., Dr. Ancil Martin.
CALIFORNIA: San Francisco, April 5. Sec., Dr. Charles L. Tisdale, 929 Butler Building.
COLORADO: Denver, April 5. Sec., Dr. S. D. VanMeter, 1723 Tremont Place.
FLORIDA: Jacksonville, April 4-5. Sec., Dr. J. D. Fernandez.
IDAHO: Boise, April 5. Sec., Dr. O. J. Allen, Bellevue.
ILLINOIS: Chicago, April 14-16. Sec., Dr. J. A. Egan, Springfield.
MINNESOTA: State University, Minneapolis, April 5. Sec., Dr. W. S. Fullerton, 214 American Nat'l Bank Bldg., St. Paul.
MONTANA: The Capitol, Helena, April 5. Sec., Dr. W. C. Riddell.
NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. J. A. Massie.
NORTH DAKOTA: Grand Forks, April 1-4. Sec., Dr. H. M. Wheeler.
OKLAHOMA: Ione Hotel, Guthrie, April 12. Sec., Dr. Frank P. Davis, Enid.
RHODE ISLAND: State House, Providence, April 7-8. Sec., Dr. Gardner T. Swarts, Room 315, State House.
WEST VIRGINIA: Wheeling, April 12-14. Sec., Dr. H. A. Barbee, Point Pleasant.

Oregon July Report

Dr. R. C. Coffey, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 6, 1909. The number of subjects examined in was 16; total number of questions asked, 108; percentage required to pass, 75. The total number of candidates examined was 111, of whom 74 passed, including 10 osteopaths and 37 failed including 2 non-graduates and 2 osteopaths. The following colleges were represented:

College	Year Grad.	Total No. Examined.
PASSED		
Birmingham Medical College	(1907)	1
Coll. of Phys. and Surg., San Francisco	(1898) (1907)	2
Gross Medical College, Denver	(1899)	1
University of Colorado	(1904)	1
George Washington University	(1908)	1
Rush Medical College	(1886) (1907)	2
Northwestern University Medical School	(1904) (1907) (1908) (1909)	4
College of Physicians and Surgeons, Chicago	(1895) (1899) (1903) (1905) (1909)	5
University of Iowa, Coll. of Homeo. Med.	(1905) (1909)	2
University of Kansas	(1903)	1
University of Louisville	(1909)	1
Hospital College of Medicine, Louisville	(1894)	1
Baltimore Medical College	(1902)	1
University of Michigan, Coll. of Med. and Surg.	(1909)	2
University of Michigan, Homeopathic College	(1904)	1
University of Minnesota, College of Medicine	(1898)	1
University of Minnesota, Coll. of Homeo. Med.	(1897)	1
Kansas City Medical College	(1891) (1902)	2
St. Louis College of Physicians and Surgeons	(1908)	1
Missouri Medical College, St. Louis	(1894)	1
Bellevue Hospital Medical College	(1867)	1
Ohio Medical University	(1905)	1
Pulte Medical College	(1894)	1
Miami Medical College	(1891) (1908)	2
University of Oregon	(2, 1908) (10, 1909)	12
Willamette University	(1906) (3, 1907) (4, 1909)	8
University of Pennsylvania	(1908)	1
Medico-Chirurgical College, Philadelphia	(1906)	1
University of Tennessee	(1903)	1
University of Vermont	(1886)	1
Marquette University, Milwaukee	(1908)	1
Queens University, Kingston' Ontario	(1906)	1
Trinity Medical College, Toronto	(1890)	1
FAILED		
University of Colorado	(1904)	1
Atlanta College of Physicians and Surgeons	(1891)	1
College of Physicians and Surgeons, Chicago	(1905)	1
Illinois Medical College	(1908)	1
Rush Medical College	(1903)	1
Chicago College of Medicine and Surgery	(1904)	1*
Drake University, College of Medicine	(1904)	1
University of Louisville	(1907)	1*
Kentucky School of Medicine	(1908)	1
Michigan College of Medicine and Surgery	(1898)	1
St. Louis College of Physicians and Surgeons	(1904)	1
Barnes Medical College	(1900) (1906)	2
Bellevue Hospital Medical College	(1867)	1*
Ohio Medical University	(1904)	1
Univ. of Oregon	(1905) (1906) (2, 1908)* (2, 1909)	6
Willamette University	(1904) (1906)* (1907)* (1907) (1908) (3, 1909)	8
Memphis Hospital Medical College	(1909)	1
Tennessee Medical College	(1908)	1
Western University, London, Ontario	(1900)	1*
University of Turin, Italy	(1899)	1*

* Second examination.

Illinois October Report

Dr. J. A. Egan, secretary of the Illinois State Board of Health reports the written examination held at Chicago, Oct. 20-22, 1909. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 84, of whom 52 passed and 31 failed. One candidate took an incomplete examination. The following colleges were represented:

College	Year Grad.	Total No. Examined.
PASSED		
Medical College of Alabama	(1904)	1
Howard University, Washington	(1907)	1
Bennett Medical College	(1909)	3
Hahnemann Medical College and Hosp., Chicago	(1909)	2
Illinois Medical College	(1908) (6, 1909)	7
Jenner Medical College	(1908) (2, 1909)	3
National Medical University	(1909)	5
Northwestern University Medical School	(1909)	3
College of Physicians and Surgeons, Chicago	(1909)	4
Reliance Medical College	(1909)	2
Rush Medical College	(1900) (1906) (5, 1909)	7
College of Physicians and Surgeons, Keokuk	(1897)	1
Kentucky School of Medicine	(1902)	1
University of Louisville	(1909)	1
Johns Hopkins University	(1907)	1
St. Louis College of Physicians and Surgeons	(1909)	3
Barnes Medical College	(1908)	1
Meharry Medical College	(1909)	2
University of Nashville	(1909)	1
Vanderbilt University	(1908)	1
Western University, London, Ontario	(1909)	1
Royal College of Physicians and Surg., Dublin	(1889)	1
FAILED		
University of Arkansas	(1909)	1
Bennett Medical College	(1909)* (1909)	2
Chicago College of Medicine and Surgery	(1909)	4
Chicago Medical College	(1877)	1
College of Medicine and Surgery, Chicago	(1908)† (1909)* (2, 1909)	4
Hahnemann Medical College and Hospital, Chicago	(1908)** (1909)	2
National Medical University	(1909)	2
College of Physicians and Surgeons, Chicago	(1909)	1
Reliance Medical College	(1909)* (2, 1909)	3
Illinois Medical College	(1908)	1
Jenner Medical College	(1907)** (1909)*	2
Drake University, College of Medicine	(1909)	1
Keokuk Med. Coll., College of Phys. and Surg.	(1908)**	1
Hospital College of Medicine, Louisville	(1904)**	1
Barnes Medical College	(1908)† (1908)‡	2
St. Louis Coll. of Phys. and Surg.	(1906)† (1909)**	2
Vanderbilt University	(1909)	1

* Second examination.
** Third examination.
† Fourth examination.
‡ Sixth examination.

Nebraska November Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 10-11, 1909. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed and 1 failed. A report of sixteen candidates who were licensed through reciprocity since Aug. 10, 1909, has also been received. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Louisville National Medical College	(1909)	78.2
Ensworth Medical College	(1909)	75.7, 79.8
Barnes Medical College	(1909)	76.5
University of Tennessee	(1909)	91.5
FAILED		
Chicago College of Medicine and Surgery	(1909)	72.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hering Medical College	(1904)	Kansas
Northwestern University Medical School	(1903)	Minnesota
Rush Medical College	(1908)	Utah
College of Physicians and Surgeons, Chicago	(1897) (1901) (1906)	Iowa
Drake University	(1909)	Iowa
University of Kansas	(1906)	Kansas
Kansas Medical College	(1904)	Kansas
St. Louis University	(1906)	Missouri
Ensworth Medical College	(1909)	Kansas
Creighton Med. Coll.	(1907) Iowa; (1908) Kansas; (1909)	Wisconsin
Nebraska College of Medicine	(1908)	Kansas
Jefferson Medical College	(1888)	Iowa

Book Notices

DIAGNOSTIC METHODS, Chemical, Bacteriologic and Microscopic. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacologic Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago. Cloth. Pp. 611, with 211 illustrations. Price, $6.00 net. Philadelphia: P. Blakiston's Son & Co., 1909.

The distinguishing feature of this book is the exhaustive diagnostic interpretation of the laboratory findings. In this respect it contrasts most favorably with other books of a similar character in which undue attention is bestowed on the purely academic and theoretic aspects of laboratory medicine, while the clinical significance of laboratory symptoms is only vaguely dealt with. The author manifests the courage of his convictions in a refreshing manner by confessing ignorance in regard to the clinical explanation of certain laboratory phenomena, rather than by indulging in theoretical speculations which are still matters of controversy and which, to the practical medical man, would be misleading. In questions still *sub judice* the opinions expressed are sane and conservative, and depart in no way from established and reasonable premises.

The description of methods is clear; the details are explained in such a manner that even the inexperienced can become proficient if only he will carefully follow directions; much space is properly given to the things that should not be done and to the difficulties one may expect to encounter in performing the different tests. Not all the methods that have ever been described are given, and no claim for completeness in this direction is made. This is commendable rather than otherwise, particularly as the selection of the methods is judicious, and those that have been principally selected by the author are both accurate and relatively easy of execution. While some of the more complicated tests required for purely scientific work are also described—tests that require a high degree of special training and rather extensive paraphernalia—most of the manipulations recommended can be performed by any one with ordinary training and with simple and few apparatus. One is impressed, in reading the author's technical descriptions, with the conviction that he speaks from personal experience with methods and not from purely literary research.

Particular emphasis has been placed on the various nitrogenous excreta of the urine, their recognition, analysis and clinical significance. The introduction of this subject into clinical medicine is comparatively recent, but much of value has been learned from it. The methods of isolating and separately estimating the nitrogenous end-products of metabolism as they appear in the urine in health and in disease are excellently rendered; the interpretation of the various findings in this field is in accord with modern scientific thought; common fallacies in regard to urea and ammonia excretion, in regard to the appearance of rarer nitrogenous excreta, are exposed and correct explanations given in their place. The clinical significance of the aromatic urinary radicals, and the factors that operate to cause their excretion are fully explained; these paragraphs make very interesting reading. No objection can be formulated against the ideas expressed in regard to the significance of the uric-acid excretion and of the metabolism of the whole purin group. The chapter on urine essentially represents a concise section in metabolism and its disorders in so far as the latter become manifest in perversions of the urinary excreta.

The chapter on blood is profuse, with good plates and illustrations, and incorporates the best and simplest methods of blood analysis, morphologic, biologic and chemical. All that is of practical value in the physiology of the blood prefaces the remarks on blood pathology, so that a clean-cut basis for comparison is given, both in regard to the anatomic, i. e., structural, changes of the blood and in regard to the perversions of its functions. Similar praise can be bestowed on the sections on the feces, the gastric contents, the sputum, the secreta of various orifices of the body and the purely descriptive chapters on human parasites.

What is known in regard to functional diagnosis is duly incorporated in its proper place; the attitude of skepticism expressed particularly in regard to the value of some of the

tests in vogue for renal inadequacy is justified: the methods are merely described for what they are worth, and the hint is given, rightly, that from the clinical standpoint, at least, they are not worth much.

Both as a reference handbook and as a text-book for continuous reading for the research worker, as well as for the medical student and the practitioner, this book should prove of much value. It is one of the best of its kind in any language.

THE PRINCIPLES OF PATHOLOGY. By J. George Adami, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, Montreal, and Albert G. Nicholls, M.A., M.D., D.Sc., F.R.S., Assistant Professor of Pathology and Lecturer in Clinical Medicine in McGill University. Vol. II. "Systemic Pathology." Cloth. Pp. 1064, with 310 engravings and 15 plates. Price, $6 net. Philadelphia: Lea & Febiger, 1909.

In this volume of over a thousand pages is continued the work begun by the senior author in the first volume on special pathology. The unusual character of the general pathology is not so evident in this volume, which is to be expected from the nature of the subjects under consideration. Being written by two men with marked difference of style, the work is very uneven; this is the common fault with books constructed by two men, that they lack the cohesion and uniformity of books written by a single author, without securing the thorough mastery of each topic which is obtained in works written by many well-selected specialists.

As being the largest and most pretentious work ever published in English, this is undoubtedly the best book on special pathology available to those who cannot read German. But having aimed so high, the authors and publishers cannot complain if their product is compared with the best of the foreign pathology, rather than with its English and American predecessors which are mostly expanded quiz compends and not serious attempts at exhaustive treatises on pathology. Our pride of race is sufficient to make us wish we could say that this American production is the best in any language, but this we cannot honestly do. Compared with the most recent German texts it may excel them somewhat in its discussion of certain aspects of pathologic physiology, but it is far short of them in systematic arrangement, in illustrations, in bibliography, and above all in wealth of facts and concise thoroughness of exposition. A tremendous diffuseness of language prevails, and at times seems to be substituted for facts that the reader desires to secure. Omissions of important details are common, and often are too serious to be fully atoned for by the interesting suggestion or capable discussions of disputed points with which the book abounds. It can, indeed, be said that few topics are exhaustively covered. The illustrations are not numerous, a few are excellent, many of the microphotographs will fail entirely to convey any idea of the structure represented to the untrained eyes of those for whom the book is intended—this, in fact, is the common condition of text-book illustrations from microphotographs.

The bibliography is not at all complete, and contains among valuable references also references to articles of little moment which seem to have been included chiefly for local reasons. In the present day no book can claim standing as a work of reference which does not indicate intelligently where one may go to get the best first-hand accounts by those who have made special study of each and every topic under discussion. In this book, not only are the references scanty and incomplete, but much important modern work has failed to receive proper recognition in the text.

In spite of all these drawbacks which must arouse sincere regret in those who have long been waiting for an American pathology that should be the equal of the best, yet the fact remains that this is the best book now available for the student and practitioner who is limited to English for his reading, and it has many points of merit. It is nearly always accurate, its faults being more of omission than of commission, and it is more readable than the average book of the kind. The relation of the physiologic and pathologic behavior of the different organs is kept in mind more than is usual. There are also many original ideas and suggestions, some of great value, which cannot be found in any other place.

A PRACTICAL STUDY OF MALARIA. By William H. Deaderick, M.D., President of the Tri-State Medical Society. Cloth. Pp. 396, with Illustrations. Price, $4.50 net. Philadelphia: W. B. Saunders Co., 1909.

This is more than an excellent compilation of what is known of the subject, for the knowledge is carefully filtered and weighed by one who is familiar with the disease in its various phases.

If any criticism is to be made of this excellent book it is that sometimes quotations from others are too long. They are so well selected, however, that one cannot find serious fault with them. Moreover, they have the advantage of enabling the reader to get his information at first hand and not from abstracts. The long key to mosquitoes of North and Central America taken from Coquillett's classification and descriptions prepared for and published by the United States Department of Agriculture might well have been omitted, for it can be readily procured by any one desiring it. The description of the parasite in all its varied forms and phases is full and accurate. This constitutes one of the most interesting portions of the book.

The author describes fully the gross and histologic pathology of malaria. The chapter on this subject is illustrated by excellent plates copied from Kelsch and Kiener, and from Werner. Unfortunately, no direct reference is made in the text to these illustrations; no description is given of what they illustrate; even the numerous references given on the original plates are here omitted. This lessens their value and makes them seem less related to this book than ought to be the case.

The clinical history of malaria in all its varieties and with all its complications is fully considered, and the important paramalarial condition, hemoglobinuric fever, is also described and discussed fully. As would be expected, the technic of making blood-smears and staining and examining them is described and illustrated fully. The importance of blood-examinations for a diagnosis is dwelt on, but the difficulty of obtaining positive results in such examinations is not minimized. Also, as would be expected in so exhaustive a treatise, the various preparations of quinin are studied statistically and the best are pointed out. The value of substitutes is carefully estimated. The best method of administering drugs, the dosage and time of administration, are fully considered. The chapter on prophylaxis is one of the most interesting and practical.

The book as a whole is commendable, well written and interesting. The illustrations are numerous and well selected, and include portraits of Laveran and Ross. It is instructive and interesting thus to become acquainted with investigators who have done so much in unraveling the problems of malaria.

DISEASES OF THE NOSE, THROAT AND EAR. By Charles Huntoon Knight, A.M., M.D., Professor of Laryngology, Cornell University Medical College, and W. Sohier Bryant, A.M., M.D., Consulting Otologist, Manhattan State Hospital. Second Edition. Cloth. Pp. 609, with 239 illustrations. Price, $4.50 net. Philadelphia: P. Blakiston's Son & Co., 1909.

This work consists of a new edition of Knight's "Diseases of the Nose and Throat," with a new section on "Diseases of the Ear," by Bryant. The new edition of the section on "Diseases of the Nose and Throat" differs from the old, chiefly in the addition of new material on the subjects of deviated septum and accessory sinus diseases. The section on "Diseases of the Ear" comprises 219 pages, of which 87 pages deal with the anatomy and physiology. The portion on the anatomy of the external and middle ear is well written, and the illustrations are fairly good. In the discussion of the histologic structure of the membranous labyrinth some statements are made that are not in accordance with the generally accepted views. For instance, quoting from page 463, "the so-called tectorial membrane of the organ of Corti is an artifact of long hairs of neuro-epithelium of the organ of Corti."

The diseases of the middle ear are covered in 17 pages. The author recognizes two main groups of middle-ear: inflammation and atrophic changes. Under the latter the author includes "what has been called chronic middle-ear catarrh and otosclerosis and also tympanic atrophy following purulent otitis media." It is further stated that the complication to be feared is possible involvement of the labyrinth due to the extension of the atrophic condition of that organ." According to the last edition of Politzer's "Diseases of the Ear," recent pathologic investigations have demonstrated beyond doubt

that otosclerosis is a primary disease of the labyrinthine capsule.

A chapter is devoted to aural surgery. The discussion of the different operative procedures are lacking in systematic description and important detail. Some of the illustrations are excellent.

DIE SERODIAGNOSE DER SYPHILIS. By Dr. Carl Bruck, Privatdozent and Oberarzt of the Dermatologische Universitätsklinik in Breslau. Paper. Pp. 166. Price, 4.80 marks. Berlin: Julius Springer, 1909.

Bruck's monograph is a masterly presentation of all the work done by him in collaboration with Wassermann and Neisser in developing the complement-fixation method.

The author reviews the literature on the subject up to September, 1909, and insists that all the modifications of the method are unreliable and should not be permitted to replace the original Wassermann-Neisser-Bruck technic, and he considers it essential to confine it to special institutes in the medical centers only, as has been done already in Vienna, as well as to specially trained men, to prevent the numerous possibilities of error in interpretation. The original method is described in detail. Bruck attributes all positive reactions in other diseases than syphilis, framboesia tropica and leprosy to faulty technic. The author admits that the reaction is not biologically specific, however. A positive reaction may not usually be expected before the sixth week after infection, and indicates the generalization of the virus. During the secondary stage, 94 per cent. of all cases give a positive reaction after specific treatment indicates the destruction of the virus, and repeated tests should be made to ensure the permanence of the negative reaction. In the later stages, a positive reaction is also an indication for treatment, but a permanent negative reaction is more difficult to obtain. In the primary stage, the finding of *Spirochæta pallida* is sufficient to begin specific treatment. If no spirochetes have been found, a positive serum reaction may be expected six weeks after the infection, which indicates antisyphilitic treatment before secondaries appear. A permanent negative reaction is obtained more easily by early treatment.

A TEXT-BOOK OF EXPERIMENTAL PHYSIOLOGY FOR STUDENTS OF MEDICINE. By N. H. Alcock, M.D., and F. O'B. Ellison, M.D. Preface by E. H. Starling, M.D. Cloth. Pp. 139, with illustrations. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1909.

The present work is called an attempt to put into practice "the syllabus of practical physiology of the University of London. It is a laboratory manual and is designed, as is indicated in the preface "more in accordance with the actual requirements of the student of medicine" than as a laboratory guide to general physiology. The subjects dealt with are the physiology of muscle, digestion, respiration, circulation, the blood, secretion of urine, temperature, nervous system and special senses. The topics and experiments are well chosen and there are 36 helpful illustrations in the text. Few of the experiments are complicated and many of them have some practical bearing on questions encountered later in the medical course. Of recent years the subject of physiology has grown to such immense proportions that it is impossible to include the entire subject in the medical curriculum. It has thus become a question with authors of text-books on physiology and teachers of physiology just how much and what were good to give a student of medicine. In so far as the laboratory work is concerned (and this has grown to be one of the most important practical parts of the subject) the present volume shows an excellent selection and limitation of topics and is a good answer to this question.

RENAL, URETERAL, PERIRENAL AND ADRENAL TUMORS AND ACTINOMYCOSIS AND ECHINOCOCCUS OF THE KIDNEY. By Edgar Garceau, M.D., Visiting Gynecologist to St. Elizabeth's Hospital, and to Boston Dispensary, Boston, Mass. Cloth. Pp. 404, with 72 illustrations. Price, $5. New York: D. Appleton & Co.

The book contains the following chapters: (1) solid tumors of the renal parenchyma; (2) embryonic tumors; (3) tumors of the renal pelvis and ureters; (4) polycystic kidney; (5) simple serous cysts of the kidney; (6) perirenal tumors; (7) adrenal tumors in adults; (8) adrenal tumors in children; (9) actinomycosis of the kidney; (10) echinococcus of the kidney; (11) determination of renal efficiency. The longest chapter is the first, which deals with the solid tumors, in which are included hypernephroma, carcinoma, sarcoma, and malignant adenoma, as well as benign tumors. The etiology, pathology, anatomy, symptoms, diagnosis, and treatment of the various tumors and other conditions considered are fully and clearly discussed. In connection with hypernephroma, embryonic tumors and adrenal tumors in children are given instructive tables of cases. The illustrations are satisfactory; possibly those of carcinoma of the renal parenchyma leave something to be desired in clearness. The book is well written and gives a valuable presentation of the principal facts in regard to the conditions discussed.

HANDBOOK OF THERAPY. Cloth. Price, $1.50. Pp. 421. Chicago: American Medical Association, 1910.

This handbook has been compiled from articles which have appeared in the department of therapeutics of THE JOURNAL. The usefulness of the book for reference has been increased by the addition of tables of weights and measures, lists of latin terms and abbreviations, poisons and their antidotes and treatment in brief, synonyms, and "New and Nonofficial Remedies" that have been passed on favorably by the Council on Pharmacy and Chemistry. Under the head of general diseases various topics are discussed briefly, such as diet in typhoid fever, alcoholic cerebral edema, tobacco, snake poisoning, illuminating gas poisoning and a number of others. Under the head of the various systems, as the digestive, respiratory, circulatory, etc., various diseases are taken up and valuable suggestions given in the way of prescriptions and directions for their general management. Diet and physical remedies are treated briefly, and following this, systemic remedies, hypnotics, circulatory depressants, alkalies, cathartics, antiseptics, etc., though only a few under each class are described. The book closes with a brief chapter on proprietaries versus U. S. P. and N. F. preparations.

DISEASES OF THE EAR. By Edward Bradford Dench, Ph.B., M.D., Professor of Diseases of the Ear in the University and Bellevue Hospital Medical College. Cloth. Pp. 696, with 158 illustrations in text and 9 plates. Fourth Edition. Price, $5. New York: D. Appleton & Co., 1909.

During the six years that have elapsed since the appearance of the last edition of this work, the most marked advances in otology have been made in the physiology and the pathology of the internal ear, the surgery of labyrinthine disease and of intracranial lesions of otitic origin. In the new edition will be found a description of the recent investigations for the examination of the static function of the labyrinth. The technic of the operative treatment of labyrinthine suppuration has been considered in detail. The chapters dealing with brain abscess and intracranial surgery are practically new and give the results of the clinical experience of the author and numerous other observers.

New material has been added on various subjects throughout the text, which brings the work thoroughly up to date. The new material is of the same high standard that has characterized the former editions of this well-known text-book.

A TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY. By William Easterly Ashton, M.D., LL.D., Fellow of the American Gynecological Society. Fourth Edition. Cloth. Pp. 1099, with illustrations. Price, $6.50 net. Philadelphia: W. B. Saunders Co., 1909.

In this new edition alterations have been made in the chapter on ectopic gestation. The subject of tuberculosis of the genital organs has been revised and additions made to the treatment of cystitis. Several changes have been introduced in the technic of abdominal and pelvic operations. In those pages devoted to the pathology of shock, to peritonitis, and to movable kidney, the subject matter has been brought up to accord with the results of most recent experiments. Some change is noticed also in the operative management of suppuration of the pelvic connective tissue, emphasis being placed on evacuation of pus by vaginal section.

A TEXT-BOOK OF OBSTETRICS. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Sixth Edition. Cloth. Pp. 953, with 847 illustrations. Price, $5. Philadelphia: W. B. Saunders Co., 1909.

This edition has been reedited throughout; new illustrations have been added and many older ones removed. It is a satisfaction occasionally to see an author replacing some old-time illustrations with others more true to life and more nearly representing the subject to be illustrated. The author has taken the stand that obstetrics and gynecology should be united; that the obstetrician should be a gynecologist. He says in his preface that panhysterectomy for chorio-epitheli-

oma is as much of an obstetric operation as the application of forceps. Most text-books mention that certain operations should be done for conditions incident to childbirth, but they give no idea of how this operation should be done or the technic of its performance. This work, however, includes the operation and technic of pelvic surgery, which certainly renders it most valuable. To the specialist in obstetrics, the general physician or the student this work is to be highly recommended.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By James M. Anders, M.D., Ph.D., LL.D., Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College. Ninth Edition. Cloth. Pp. 1326, with illustrations. Price, $5.50 net. Philadelphia: W. B. Saunders Co., 1909.

By a careful revision with exclusion of more or less obsolete matter, the new edition has been brought up to date without any material increase in the size of the volume. The attention given to diagnosis makes the work valuable to the practicing physician. The newer methods are generally referred to, but the technic is reserved for special works. The more modern methods of treatment are represented, but while condensation is absolutely necessary in such a work, we believe that most readers will be disappointed to find so little discussion of such important subjects as tuberculin therapy and pellagra. The information given is sometimes so incomplete as to be of little use. For instance, on page 947 occurs the sentence, "Walko regards the muscle-nucleus test as being of diagnostic value." Recent text-books on diagnosis do not index the "muscle-nucleus test." The book gives no reference by which a description of the test could be found. In spite of these criticisms we must accord the work a high rank among treatises on the practice of medicine.

THE DISEASES OF CHILDREN. By Henry Enos Tuley, M.D., Professor of Obstetrics, University of Louisville, Medical Department. Cloth. Pp. 631, with illustrations. Price, $5. Baltimore: Southern Medical Pub. Co., 1909.

This book begins with chapters on the anatomy, physiology and hygiene of infants. Methods of examination are clearly explained and methodical consideration of each disease of childhood follows, giving both in the text and in the appendix standard formulas used in pediatrics. Chapters on the nose and throat, the ear, and the eye are included. The chapter on infant feeding is particularly full and satisfactory. The section on malaria is noteworthy because of its thorough historical paragraph. The book is well printed, usefully arranged, and can be commended.

SPRAINS AND ALLIED INJURIES OF JOINTS. By R. H. Anglin Whitelocke, M.D., M.C., F.R.C.S., Honorary Surgeon to the Radcliffe Infirmary County Hospital at Oxford. Cloth. Pp. 241, with 65 illustrations. Price $3. New York: Oxford University Press, 1909.

The chief points of importance emphasized in this little volume are (1) the necessity of examining patients with injuries to the joints more carefully in order to differentiate the simple sprains from those complicated slight fractures which often are recognizable only by the use of the *x*-ray; and (2), the use of fixation in fracture-sprains, whereas the simple sprains should be treated by massage and early active motion of the joints. These points the author brings out quite clearly in a simple though practical manner.

A MANUAL OF OTOLOGY. By Gorham Bacon, A.B., M.D., Professor of Otology in the College of Physicians and Surgeons, Columbia University, New York. Fifth Edition. Cloth. Pp. 492, with 147 illustrations and 12 plates. Price, $2.25. Philadelphia: Lea & Febiger, 1909.

Bacon's "Manual of Otology" continues to be a popular text-book, brevity combined with clearness of description making it especially well adapted to the needs of the student. The subject of otology is covered as thoroughly as by many much larger works. Addition of new material and revision of the old brings this work thoroughly up to date without greatly increasing its size.

A MANUAL OF NATURAL THERAPY. By Thomas D. Luke, M.D., F.R.C.S., Physician at the Peebles Hydropathic. Cloth. Pp. 295, with 125 illustrations. Price, $2.50. New York: William Wood & Co.

While all may not agree as to the appropriateness of the title of this book, it forms a convenient term under which to group the non-medicinal measures used in the treatment of disease. The subjects included are hydrotherapy, thermotherapy, phototherapy, massotherapy, electricity and dietetics. The various technics are described and well illustrated.

Medicolegal

Damages for Injury to Artificial Anus—Exhibiting Injured Parts to Jury and What Not Indecent Evidence—Second Examination Not Required

The Supreme Court of Washington says that the case of Dunkin vs. City of Hoquiam (105 Pac. R., 149) was brought to recover damages for personal injuries alleged to have been sustained by the plaintiff in being thrown from a bicycle by an obstruction in a street along which he was riding one evening in September, 1908. Now about 29 years of age, his evidence tended to show that in 1900 he contracted the yellow fever, which resulted in the closing of the lower bowels, since which time he had an artificial anus, which he could partially control. The testimony of a physician showed that he examined him in January, 1901; that the artificial anus was then in good condition, the projection of the bowel being about one-twelfth of an inch; that he next examined him about two years before the trial, his condition then being about the same as when he made the former examination, and that he was then in good health; that he examined him at the time of the trial, and found that seven or eight inches of the lining of the bowel protruded from the side; that he had no control over the bowel; that he was not able to do any kind of work; that he was in constant pain; and that the injury would increase as time progressed. On this evidence it seemed certain that the jury did not award excessive damages in rendering a verdict for $7,500, judgment on which, in the plaintiff's favor, is affirmed.

Nor does the court think that it was error to permit the plaintiff to twice exhibit the injured part to the jury. This was urged as error on two grounds: (1) That it had a tendency to enlist the sympathy of the jury; and (2) that it was indecent. On the first contention the court assumes that, had the injury complained of been a broken leg or arm, the contention would not be tenable. The fact that the injury occurred to some other part of the body would not change the rule of evidence. This court apprehends that no court would permit the introduction of indecent evidence unless it was so connected with the res gestæ or essential facts of the case as to become necessary to the administration of justice. Indecency depends on the purpose of the utterance or act. "What we are to conclude, then, since the progress of investigating the truth in courts of justice is both an indispensable and a dignified function in life, is that no utterances or acts called for in evidence in that process are to be prohibited because under other circumstances they might be characterized by indecency. In other words, the general policy of discountenancing indecency does not extend to the exclusion of evidence in a court of justice." 3 Wigmore on Evidence, section 2180.

The court sees no error in a ruling sustaining an objection to a question asking the plaintiff, on cross-examination, if he was not drawing a pension for total disability at the time of receiving the injury, where the object was to show, not that he was suffering from a total disability before the accident, but rather that, owing to his physical condition, it was negligence for him to have ridden a bicycle in the dark without a lantern, and that his ailment was not increased by reason of the accident. What was claimed to be the medical examination and physician's certificate made, in February, 1901, in the pension matter, were inadmissible in evidence as too remote in point of time and because the certificate of the medical examiner was hearsay.

Prior to the trial the trial court appointed certain physicians to examine the injuries sustained by the plaintiff, and they examined him. During the trial the defendant asked the court to require the plaintiff to submit to a further examination by one of these physicians. The court refused to do so. There was no error in this. The authorities cited were cases where there had been no previous examination.

Officials Legally or Negligently Discharging Patient from Insane Hospital Are Not Liable for Crime Subsequently Committed by Him

The Supreme Court of North Carolina had, in Bollinger vs. W. P. Rader and others (66 S. E. R., 314), a case which embraced among the defendants the superintendents and three directors of a state hospital for the insane and wherein it was complained that a patient named Lonnie Rader had been negligently discharged and some six months afterwards, while insane, killed a girl, described as "the plaintiff's intestate." The complaint was demurred to on the ground that it did not state a cause of action against the defendants individually or collectively in that it appeared from it that said defendants held the official positions above mentioned; that it was by virtue of their said offices and while acting within the scope of authority conferred by law that they discharged or released the said Lonnie Rader, and that the four defendants referred to were by section 4560 of the Revisal of North Carolina Statutes of 1905 exempted from all personal liability for the alleged acts and omissions complained of.

Section 4560 referred to is a portion of the statute under which the hospital was created, organized, and now exists. It provides that: "No director or superintendent of any state hospital shall be personally liable for any act or thing done under or in pursuance of any of the provisions of this chapter." Section 4596, under and by virtue of the authority conferred by which the discharge was made, provides: "Any three of the board of directors of any hospital . . . shall be a board to discharge or remove from their hospital any person admitted as insane when such person has become or is found to be of sane mind, or when such person is incurable, and in the opinion of the superintendent, his being at large will not be injurious to himself or dangerous to the community; or said board may permit such person to go to the county of his settlement on probation, when, in the opinion of said superintendent, it will not be injurious to himself or dangerous to the community, and said board may discharge or remove such person on other sufficient cause appearing to them."

Under these circumstances the court thinks that the defendants' demurrer was properly sustained, on the ground stated, and judgment rendered for them.

But what is of still more general interest, the court adds that it does not seem to it that the discharge of Lonnie Rader on March 5th, even if negligently made, was the proximate cause of the death of the girl, which occurred September 13th following. The allegation was in the nature of "Post hoc, ergo propter hoc" (after this, therefore on account of this). The defendants could not, by the exercise of ordinary care and caution, have anticipated, foreseen, or expected that the death of the plaintiff's intestate would follow as the natural result of their act in discharging Rader from the hospital. Their erroneous or mistaken opinion or judgment that Lonnie Rader was sane, or insane, that his being at large would not be injurious to him or dangerous to the community, or that there were other sufficient reasons why he should be discharged, and their act in discharging him, did not cause her death. It might be that, if they had kept Rader confined in the State Hospital, he might not have killed her; but it was equally true that if he had never been born, or had never become insane, he would not have killed her. The discharge of Rader, his absence from the hospital, his presence in Catawba county, and his presence at church on the day of the homicide, was a mere condition which accompanied, but did not cause the injury.

Validity of Law Requiring Proper Factory Ventilation—Against Whom it May Be Made Enforceable

The First Appellate Division of the Supreme Court of New York says, in People, on the relation of Williams, Commissioner of Labor, vs. Eno (119 N. Y. S., 600) that section 86 of the New York labor law, as amended in 1907, provides that: "The owner, agent or lessee of a factory shall provide, in each workroom thereof, proper and sufficient ventilation; if excessive heat be created or if steam, gases, vapors, dust or other impurities that may be injurious to health be generated in the course of the manufacturing process carried on therein, the room must be ventilated in such a manner as to render them harmless, so far as practicable; in case of failure the commissioner of labor shall order such ventilation to be provided. Such owner, agent or lessee, shall provide such ventilation within twenty days after the service on him of such order, and in case of failure, shall forfeit to the people of the state ten dollars for each day after the expiration of such twenty days, to be recovered by the commissioner of labor."

It is clear that the law was passed by the legislature in the exercise of the police power of the state, and that it tends "in a degree that is perceptible and clear towards the preservation of the lives, the health, the morals or the welfare of the community," and so is a valid exercise of the police power within the principles thoroughly established in New York state.

When it is admitted that the subject-matter of the act comes within the exercise of the police power by the Legislature, it was for that body to determine the most efficacious way to insure its enforcement. It has determined that, when an owner of a building turns it into a tenant factory as defined by the law, that owner shall be held responsible in defined particulars for the observance of this health law, and by specific provisions has conferred on him opportunity and power to observe those provisions by right of entry, and, if necessary, dispossess proceedings. It has in terms also made the tenant responsible. Whether the public officer charged with the enforcement of the law should proceed against the owner, or the tenant, or both, is a matter of administration of the law, with which the court has nothing to do. It is no answer for one person, who is made responsible by law for an existing condition, to say that another person is also responsible, and should be proceeded against.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

March 5

1 *Phases of the Evolution of Modern Preventive Medicine, as Illustrated by the Present Campaign against Tuberculosis. G. S. Woodhead, Cambridge, England.
2 *Special Features in Symptomatology and Pathology of Anemia of the Central Nervous System. S. Leopold, Philadelphia.
3 *The Splashing Sound of the Stomach. J. W. Weinstein, New York.
4 *Successful Treatment of Specific Salpingitis with Gonococcus Vaccine. A. L. Tuttle, Milford.
5 *Surgical Accident Necessitating Intestinal Resection. E. H. Eising, New York.

1. **Prevention in Tuberculosis.**—It is pointed out by Woodhead that the aim of those interested in preventive medicine is to "corral" the tubercle bacillus. As in the case of typhoid carriers and lepers we have to devise some practical and practicable method of dealing with each set of cases, and even with each case as it arises and it is for this reason that the work of the tuberculosis dispensaries has been attended with such a large measure of success. The medical men and their assistants in these dispensaries, from one case are able to trace others. They come across cases of tuberculosis in all stages of development, and among all sorts and conditions of men, they weigh up the possibilities of treatment in various individual circumstances, and having adopted the treatment that seemed best to meet the conditions and necessities of the case, they are able to provide a resting place in which the poor wornout worker can end his days in comparative peace and comfort without being a danger to his fellows. They are able to train the patient suffering from incipient phthisis in cleanly and in effective and safe methods of disposing of his sputum, etc. So that should all efforts at cure be unavailing, the patient, even in the most infective stages of his disease, by the care he exerts, is able to reduce the danger of infection from himself to others to a minimum. From all

this it is evident that we must make use of those means which come most readily to hand and which, at the same time, appear to meet most closely the exigencies of any special case.

2. **Anemia of the Central Nervous System.**—Leopold reports six cases of anemia of the central nervous system, resulting in sclerosis of the cord. The onset of the disease is gradual. The symptoms are very variable, as are the changes in the spinal cord. Sometimes the posterior columns are involved, sometimes the lateral tracts are added; again there is a diffuse sclerosis of the entire cord. Paresthesia and ataxia may persist for years with few changes in the cord, or the intensity of the alterations may be much greater than the clinical symptoms. The mental state may be dull and inattentive, and there may be various muscular palsies of eye muscles or face. But the spinal cord muscles predominate over those of the brain.

3. **Splashing Sounds of the Stomach.**—Weinstein holds that a splashing sound in the stomach may be obtained in any case in which there is fluid present with gas in the stomach, when the abdomen is tapped or shaken. Such a stomach is not necessarily the seat of atony. If the sound is obtained when the stomach should be empty it may show pyloric obstruction. If it is found over the normal area of the stomach it indicates a condition to be referred to that viscus, while if found lower down it is due to the same conditions located in the colon. After lavage this sound will show that the stomach is not yet empty. When the patient himself observes the splashing, the stomach is generally atonic.

4. **Gonococcus Vaccine in Specific Salpingitis.**—A case of gonorrhea of the genital organs, including inflammation of the adnexa, was treated by Tuttle with large doses of vaccine, with complete restoration of health after a month. The patient gave birth to a healthy child after her recovery.

5. **Surgical Accident Necessitating Intestinal Resection.**—Eising describes a case of curetting in which the instrument penetrated the wall of the uterus and drew down a loop of ileum destroying the mesenteric connections so that an anastomosis had to be done.

Boston Medical and Surgical Journal

March 3

6 *The Rehabilitation of Neurasthenia. P. C. Knapp, Boston.
7 Anesthesia for Prostatectomy. F. H. McMechan, Cincinnati.
8 The Aftermath of Childbirth. W. P. Manton, Detroit.
9 Place of Braces in Treatment of Weak, Pronated and Flat Feet: Special Reference to a Simple Method for Preparation of the Plaster-of-Paris Casts on Which they are Fashioned. A. M. Forbes, Montreal.

6. **Rehabilitation of Neurasthenia.**—The authors emphasize the necessity of a distinction between *folie du doute* and neurasthenia, and hold that the real essence of neurasthenia as a state of exhaustion should be maintained. Too much emphasis has been laid on the psychical element in neurasthenic conditions, and the encouragement which has thus been given to the mob of charlatans who are so vociferous and ignorant in the advocacy of some new cult of psychotherapeutics, not only by incompetent physicians, but even by some who ought to know better, is much to be deplored. While the psychical element in neurasthenia is not to be neglected, and while an intelligent psychotherapy is often to be employed, it must be recognized that there is a real nervous exhaustion in many cases which demands the best therapeutic efforts on the physical side. It is absurd to lump all the cases together under the one vague heading of psychoneurosis. We must analyze cases more deeply and determine to the best of our ability how much is due to physical causes, how much to morbid psychical processes, and whether the psychical disturbance is the cause or the result of the neurasthenic state.

New York Medical Journal

March 5

10 *The Painful Uterus and its Autonomic Relations. C. A. L. Reed, Cincinnati.
11 *Sanitary Housing for Tuberculous Families. H. L. Shively, New York.
12 Gumma of the Dura Indenting the Left Hemisphere of the Cerebellum, with Autopsy. B. R. Tucker, Richmond.
13 Multiple Exostoses Coupled with Syringomyelia. C. P. Oberndorf, New York.
14 *School Dentistry Hysteria. S. W. Newmayer, Philadelphia.
15 Visceral Angioneurosis. S. S. Cohen, Philadelphia.
16 Recurrent Dislocation of the Patella. S. Tousey, New York.
17 Hemorrhagic Pericarditis. C. W. H. Mitchell, Columbia, Mo.
18 *Effective Treatment of Pompholyx. G. E. Barnes, Herkimer, N. Y.

10. **The Painful Uterus and Its Autonomic Relations.**—Reed emphasizes the fact that the uterus itself, independently of its adnexa, may be the seat of pain—a commonplace which seems to be overlooked if we may judge from the frequency with which the diseased uterus is left behind after the diseased appendages have been removed; the autonomic manifestation of uterine pain; and the method of its control. Reed employs the term "painful uterus" to designate a uterus that is the seat of pain which, in turn, depends for its causation on conditions either within or related to the organ itself, and, furthermore, to designate pain that originates within the uterus, whether that pain is manifested directly at its point of origin, that is, within the uterus, or is referred to some superficial area. The treatment of the painful uterus must be based on the principle that the logical cure of any pain must begin by removing the cause of that pain. Thus, cystic nabothian follicles should be destroyed, preferably by the cautery; varices of the pampiniform plexus should be broken up by ligating the veins in the broad ligaments; displacements should be overcome by surgical treatment addressed to the suspensory apparatus of the uterus; myomata and polypi should be removed when possible without removing the uterus, polypi always, but hysterectomy is demanded when the condition cannot be otherwise eliminated. This, likewise, is the only curative treatment of diffuse fibrosis. Chronic atrophic parametritis also demands the removal of the organ. Reed says that in all operations for the removal of infected uterine appendages associated with acute infectious parametritis, the uterus should be removed at the time of the first operation—the justification of the step being found in the uniformity with which the atrophic change follows the acute infection. Visceral pain, so far as the abdomen, pelvis and thorax are concerned, is expressed chiefly but not exclusively in the autonomic algetic areas in the protective walls covering the respective viscera, such algetic areas corresponding in extent with the peripheral distribution of the autonomic nerves coincidently with the peripheral distribution of the respective spinal nerves in the muscles and subserous connective tissue. These distributions can generally be determined clinically by determining the area of parietal hyperalgesia. The pain itself, consisting chiefly of hyper-excitation of muscle irritability, can be proportionately, and, as a rule, entirely, inhibited by inhibiting the muscle sensibility in the hyperalgesic areas.

11. **Sanitary Housing for Tuberculous Families.**—Shively describes the tenements now being constructed in New York by Mrs. W. K. Vanderbilt which will house only persons afflicted with tuberculosis.

14. **School Dentistry Hysteria.**—Newmayer considers the various phases of dental conditions found in school children; the methods of examination as now practiced; the reasons for not obtaining practical results, and the seeming impossibility of the work.

18. **Effective Treatment of Pompholyx.**—The first purpose of treatment, according to Barnes, is to free the skin of these foreign bodies and this can be done by passing with sufficient pressure the back of a knife over the diseased surfaces until every vesicle is burst. Then the abraded areas should be washed with sterile water and soap to remove all adhering serum. A weak solution of lead, zinc, or bichlorid of mercury may or may not next be applied. The denuded spots usually heal after the cleansing, but it is well, especially when the disease is extensive, to bathe them with weak bichlorid of mercury solution for its antiseptic as well as astringent action. The parts should finally be protected with a dry sterile dressing. As new vesicles appear from day to day they should be treated in the same manner. After a few days the involved surface becomes covered with a thick, shiny, parchment-like skin which is apt to crack and to improve very slowly. Oleum cadini, from one-half to one dram to the ounce, in some simple vehicle like petrolatum and lanolin, thoroughly applied once or twice daily will stimulate and soften the skin so that it will soon become normal. The

invariable accompaniment of this treatment of pompholyx should be its constitutional treatment.

Medical Fortnightly, St. Louis

February 10

19 Early Diagnosis of Pulmonary Tuberculosis. T. Y. Hull, San Antonio, Tex.
20 Stricture of the Male Urethra. E. O. Smith, Cincinnati.
21 Foreshadowing of Democracy in American Medical Association. G. F. Lydston, Chicago.

February 25

22 *Value of Surgical Celerity. C. Blickensderfer, Shawnee, Okla.
23 *Tendency of Modern Surgery. J. M. Inge, Denton, Tex.
24 Vaccination, Vivisection and Egotism. C. H. Hughes, St. Louis.

22. **Value of Surgical Celerity.**—Blickensderfer declares that rapid surgery depends for its success on a true knowledge of anatomy, structural relations and physiologic phenomena; a correct diagnosis; a proper appreciation of the patient's condition, and the ability to use, to many purposes, a few instruments, where many are generally required.

23. **Tendency of Modern Surgery.**—Inge believes that at least 30 per cent. of surgery is unnecessary and unwarranted. In this he includes minor and major operations, such as curettage without pathologic warrant, repair of the ordinary torn cervix; amputation of the cervix, repair of the relaxed vaginal outlet without visible impairment of function. The many operations for retropositions of the movable uterus, operations for so-called cystic degenerations of the ovaries, a condition which, he says, is found in almost all female cadavers, and which is physiologic and not pathologic, the removal of the uterus for prolapsus and small fibroids. The fixation of the palpable right kidney which is so common in women that depending on the personal equation of the operator, it can be found in from 10 to 30 per cent. of women. The remedy for such conditions in his opinion, is a frank, open discussion before medical associations and through medical journals by means of which the profession may be made to see the importance of a more rational and broader view of the true situation.

Ohio State Medical Journal, Columbus

February

25 Heart Tones and Heart Murmurs. J. E. Greiwe, Cincinnati.
26 The Factors of Safety in Abdominal Operations. G. W. Crile, Cleveland.
27 Acne Vulgaris: With Special Reference to its Etiology and Treatment. W. O. Roop, Dayton, Ohio.
28 *Etiology and Treatment of Acne Vulgaris. W. E. Sampliner, Cleveland.
29 Psychasthenic States. W. D. Deuschle, Columbus.
30 Ocular Symptoms of Arteriosclerosis. W. E. Bruner, Cleveland.
31 One Thousand Recorded Obstetric Cases without Maternal Mortality. A. Gaither, Cincinnati.

28. **Acne Vulgaris.**—It is not the number of remedies that are used which give the best results, but the thorough understanding of the method of application of those we do make use of, which counts the most in the successful treatment of this disease. The reaction of the skin must be carefully watched and the treatment varied to suit the conditions. When the lesions are somewhat indurated, the use of the actinic lamp twice weekly for periods of from 15 to 30 minutes has given Sampliner excellent results as a supporting measure. For the deeper indurations the *x*-ray has given good results, and by many dermatologists this is the method of choice. It is, however, in the long run, no more successful than some of the older methods, and should be reserved for those cases which are obstinate to other forms of treatment. The injection of vaccine made from dead cultures of the acne bacillus and the staphylococcus suspended in salt solution has given good results, and in Sampliner's opinion, should be given the preference over the *x*-ray. On the whole, the reports of cases treated by vaccine therapy show it to be a method that is well worthy of a careful trial in rebellious cases.

Denver Medical Times and Utah Medical Journal

February

32 General Etiology of Uroureter. B. Robinson, Chicago.
33 Report of Six Cases of Ludwig's Angina. J. Lindahl, Denver.
34 Cutaneous Blastomycosis. A. J. Markley, Denver.
35 Epilepsy: Case Cured by Oöphorectomy. H. R. McGraw, Denver.
36 Therapeutic Fads and Fancies. F. Clift, Provo, Utah.
37 Value of Early Diagnosis in Treatment of Epidemic Cerebrospinal Meningitis. R. C. Smedley, Salt Lake City.

Journal of the Indiana State Medical Society, Fort Wayne

February

38 Acute Dilatation of the Stomach. E. Walker, Evansville.
39 *What the General Practitioner Should Know about Mastoiditis. A. E. Bulson, Fort Wayne.
40 Treatment of Pancreatitis. J. C. Sexton, Rushville.
41 Acute Dilatation of the Stomach: Treatment. E. D. Clark, Indianapolis.
42 Sketches of the Medical History of Indiana (continued). G. W. H. Kemper, Muncie.
43 Eyestrain Due to Accommodation. L. Leeds, Richmond.

39. **Mastoiditis.**—That every general physician should consider a persistent earache as significant and not pass it over with a prescription for a local application of laudanum and sweet oil, or, what is worse, a prescription for an opiate to be taken internally, is the basis of Bulson's paper. The pain from a middle ear or mastoid inflammation should never be quieted with any form of opium, as by so doing the symptoms are masked. The cause of the pain, which in all cases is pent-up secretions and infection, must be treated. A free incision of the drum membrane, done under proper aseptic precautions, is comparatively harmless and at once opens an avenue for the escape of infectious material which for the want of an opening may be extended into the antrum or the brain cavity, because that direction may be the one of least resistance. With the establishment of free drainage the severe pain should cease. If pain persists there is something more serious than a simple middle-ear trouble to deal with. An acute suppuration of the middle ear, if it is progressing toward a cure, will subside gradually. If a profuse discharge stops suddenly, then the physician should look out for a mastoid, or intracranial complications, and especially if at the same time the temperature jumps upward. If mastoid symptoms develop, as evidenced by pain, tenderness, redness or swelling of the mastoid, cold should be applied to the mastoid at once, but should not be persisted in if it does not produce a decided relief of all symptoms within a few hours, and not tried at all if the mastoid symptoms have existed for 36 hours, in which case the patient should be operated on.

Finally, every middle-ear suppuration has elements of danger in it, and it should be given careful attention; that mastoid or intracranial complications and the indications for an operation therefore are clearly marked; and that 75 per cent. of the deaths as a direct result of extension of a suppuration from the middle ear can be prevented by early and proper operative procedures.

Journal Oklahoma State Medical Association, Muskogee

February

44 Tuberculosis. H. M. Williams, Wellston.
45 Surgical Aspect of Tuberculous Uterus and Appendages. C. N. Ballard, Oklahoma City.
46 Tuberculin. C. Blickensderfer, Shawnee.
47 Surgical Treatment of Tuberculous Glands. W. T. Tilly, Muskogee.
48 Medical Education of the Public on Tuberculosis. J. M. Postelle, Oklahoma City.
49 How Bovine Tuberculosis is Transmitted to Man and its Prevention. L. A. Turley, Norman.
50 Tuberculosis of the Tonsil. J. H. Barnes, Enid.
51 How Can we Care for the Tuberculous Children of Oklahoma. L. E. Andrews, Oklahoma City.
52 Tuberculosis in the Public Schools from a Medical Standpoint. W. G. Little, Okmulgee.
53 Tuberculous Meningitis. F. B. Erwin, Wellston.
54 Government Supervision of Tuberculosis. G. S. Barger, Wayne.

Therapeutic Gazette, Philadelphia

February

55 Surgical Affections of Meckel's Diverticulum; Case of Inguinal Hernia. J. B. Carnett, Philadelphia.
56 *Serum Sickness and Sudden Death Following Hypodermic Administration of Antitoxin. E. C. L. Miller and W. W. Root, Detroit.
57 Skin Varnishes. H. G. Klotz, New York.
58 Simple Methods of Applying the Metric System. M. S. Woodbury, Clifton Springs, N. Y.

56. **Serum Sickness and Sudden Death.**—While it is conceded by Miller and Root that it may be said that in cases of death following the administration of some antitoxin, death may have been caused by the serum, it has been shown that the use of small amounts of serum containing the necessary antitoxic dose, viz., from 5 to 10 c.c. of high potency serum, even with small children, is absolutely harmless. The death may have been caused by the condition known as "status lymphaticus" or some allied conditions, or it may have been

from causes unknown. As the facts in hand are not sufficient to exclude definitely any one of these three possibilities, they should all be carefully considered before reaching a conclusion.

Journal Kansas Medical Society, Kansas City

February

59 Hydrocele—Recent Work with It. The Radical Operation. H. Wilkinson, Kansas City.
60 One Hundred Consecutive Accouchements. L. C. Lardner, Chanute.

Pennsylvania Medical Journal, Athens

February

61 Recovery of Vision in an Amblyopic Eye after Four and One-Half Years of Blindness: A Contribution to the Question of Amblyopia Ex Anopsia. C. M. Harris, Johnstown.
62 *Psychoses Associated with Ocular Affections. S. D. Risley, Philadelphia.
63 *Relation Between Diseases of the Mouth and Systemic Diseases. H. B. Allyn, Philadelphia.
64 *An Improved Apparatus for Test-Meal Removal, Gastric Lavage and Inflation. F. A. Faught, Philadelphia.
65 *Study of Hyperchlorhydria. G. M. Piersol, Philadelphia.
66 *Pylorospasm. J. J. Gilbride, Philadelphia.
67 *Influence of Hydrogen Peroxid on Hydrochlorid Acid Secretion. E. H. Goodman, Philadelphia.
68 Symptom Complex of Pernicious Anemia with Small Carcinomata of Pylorus. J. E. Talley, Philadelphia.
69 *Home Treatment of Epilepsy as Contrasted with Institutional Treatment. M. Woods, Philadelphia.
70 *Epilepsy in its Relation to Menstrual Periods—Study of 23 Cases. A. Gordon, Philadelphia.
71 Obstetrics in General Practice. J. O. Arnold, Philadelphia.
72 Reforms Essential to Good Obstetric Practice. C. S. Barnes, Philadelphia.
73 *Refracting Opticians. J. Thorington, Philadelphia.

62. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1589.

63. **Diseases of Mouth and Systemic Diseases.**—Allyn believes that diseases of the gums and teeth are of great interest: (1) because they show manifest local disease with absorbent surfaces from which pathogenic bacteria may be carried to produce systemic disease, or local disease elsewhere; (2) because the diseases of the gums and teeth may be mere local expressions of systemic diseases. Carious teeth, gingivitis and stomatitis not only lead to malnutrition but produce a foul mouth, from which are absorbed poisons which cause a variety of local and general disturbances. On the other hand, dentists especially have discovered that it is sometimes impossible to arrest erosion and to cure gingivitis until a toxic state of the tissues is recognized and removed. The lesson to be learned is that the mouth must be carefully inspected both for the prevention of disease and for the diagnosis and cure of obscure metabolic disorders.

64. **Improved Apparatus for Test-Meal Removal.**—By the addition to the apparatus devised by Daland of a valve somewhat similar to that employed in certain steam engines which, because of the function which it performs, Faught has termed a reversing valve, all tube connections can be made before the tube is passed and the operator is given complete control of the flow of air or fluid by the simple turning of a lever. The parts of the apparatus are given and the method of its application outlined. Among the advantages of the method may be mentioned the ease and dispatch with which it can be carried out; its freedom from disagreeable features; uniformity of results and accuracy of findings; freedom from danger because of the feeble and easily controlled suction and pressure employed.

65. **Hyperchlorhydria.**—From an analysis of 300 cases of gastric hyperacidity by Piersol, it was shown that in 156 the abnormality in the gastric secretion was the result of a primary functional disturbance of the stomach, namely, hyperchlorhydria, while in the remaining 144 cases the hyperacidity was symptomatic of gastric dilatation, gastroptosis, gastric ulcer, gall-stones, etc. A further investigation of the 156 cases of hyperchlorhydria *per se* demonstrated that this condition is most commonly encountered during the second and third decades of life, that it is more frequent in men than in women, and that it is most often encountered in those who live under mental strain. Careless habits of eating, and the use of coffee, alcohol and tobacco predispose to its occurrence. The symptomatology of hyperchlorhydria was found to be variable and the gastric symptoms usually regarded as characteristic did not occur with sufficient constancy to be of definite diagnostic significance. The digestive power of the stomach was found to be good in hyperchlorhydria. Anemia was not as a rule found to accompany hyperchlorhydria.

66. **Pylorospasm.**—Gilbride states that the condition, which is only a symptom, occurs most frequently in gastric and duodenal ulcer, gastrosuccorrhea, and in other conditions in which there is an associated increase in the hydrochloric acid secretion of the stomach. It occurs less frequently in gastric carcinoma, occasionally in disease of the biliary passages and pancreas, also in appendicitis, etc. Pain or cramp is the most prominent symptom and it varies in intensity, duration and recurrence in each individual case. At the time of the spasm there is usually an increased peristalsis of the stomach, and when ingesta are present in the stomach vomiting may occur.

67. **Influence of Hydrogen Peroxid on Hydrochloric Acid Secretion.**—In 14 patients suffering with an excess of hydrochloric acid in the gastric content the following observations were made by Goodman: An ordinary test-meal, consisting of a piece of dry toast and 300 c.c. tea was given, extracted at the end of the usual time, and examined. After twenty-four hours a test meal consisting of a piece of toast and 300 c.c. 0.5 per cent. hydrogen peroxid solution was given and subsequently examined. There was with the latter (so-called peroxid meal) a remarkable diminution of the free hydrochloric acid in comparison to the amount aroused by the ordinary Ewald meal. In some instances there was a total absence of free acid, but in no instance were unpleasant symptoms complained of. Therapeutic use was made of the above knowledge with fairly good results. Goodman believes that in hydrogen peroxid has been found a new, safe and comparatively satisfactory remedy in hyperchlorhydria.

69. **Home Treatment of Epilepsy.**—Woods believes that in the home or small homelike sanatorium with the patient engaged in some safe and congenial occupation he may be of service to the community. In the institution, on the other hand, his identity is often lost and he becomes a mere bit of driftwood in an economic sea. He may also be seriously disturbed by the alarming manifestations of the disease about him and from the disturbing presence of which he cannot escape.

70. This article was published in the *New York Medical Journal*, Oct. 16, 1909, and was abstracted in THE JOURNAL, Oct. 30, 1909, p. 1511.

73. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1590.

Mississippi Medical Monthly, Vicksburg

February

74 The Mechanical Factor in Lobar Pneumonia. J. W. Primrose, Sarah.
75 Treatment of Pneumonia. S. E. Frierson, Lyon.
76 Uremia Associated with Motor Aphasia. C. J. Marshall, Lambert.
77 Urethroscrotal Fistula with Extravasation of Urine. G. F. Carroll, Biloxi.
78 Uncinariasis. T. K. Magee, Hamburg.

California State Journal of Medicine, San Francisco

February

79 *Uses of *B. Coli* and Streptococcus Vaccine in Urinary Diseases. A. B. Grosse, San Francisco.
80 Carcinoma and the Cervical Lymphatic System. R. Russ, San Francisco.
81 Importance of Eye, Ear, Nose and Throat Examinations in the Railway Service. A. C. Seely, Roseburg, Ore.
82 Amebiasis. J. D. Long, U. S. P. H. and M.-H. S.
83 Cesarean Section: Report of Nine Cases. A. B. Spalding, San Francisco.
84 Gunshot Wound of the Heart with Recovery. C. J. Teass, Kennett.
85 Phases in the Handling of Tuberculous Patients. G. H. Evans, San Francisco.
86 Present Status of the Osmic Acid Treatment of Neuralgia. T. C. McCleave, Berkeley.
87 Occurrence and Significance of the Boas-Oppler Bacillus in the Stools in Carcinoma of the Stomach. H. W. Allen, San Francisco.
88 Comments on Tropical Medicine. C. Wellman, Oakland.
89 Dermatitis Factitia in a Patient with Pruritus Generalis. H. E. Alderson, San Francisco.

79. **Vaccine in Urinary Diseases.**—Grosse concludes that autogenous vaccines have a definite place as therapeutic agents in urinary diseases, but must be prepared by a proficient bacteriologist, and that a well-equipped laboratory in conjunction with treatment rooms is essential. Fresh vaccines are necessary, as vaccines deteriorate much more rapidly than is generally conceded. Individuals with enlarged pros-

tate and an infected bladder, in whom a fair-sized Nélaton catheter enters the bladder easily, should not be operated on until vaccines have been given a thorough trial. In infected and encapsulated organs or when chronic inflammatory infiltrates surround the infected areas, vaccines should be supplemented by the Bier treatment to enhance the blood supply.

New Mexico Medical Journal

January

90 Pelvic Inflammation. A. H. Faith, Clovis.
91 Treatment of Typhoid in Private Practice. L. H. Pate, Lake Arthur.
92 Extrauterine Pregnancy. H. A. Ingalls, Roswell.

Buffalo Medical Journal

February

93 Nasopharynx, with Description of Electric Pharyngoscope. H. Hays, New York.
94 Types in Gynecologic Practice. J. E. King, Buffalo.
95 Infantile Scurvy Involving the Hip-Joint. N. Jacobson, Syracuse.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February

96 Injuries to the Puerperal Uterus. E. B. Cragin, New York.
97 Injuries to the Uterus—Non-Puerperal. H. C. Coe, New York.
98 Relations of the General Practitioner to Obstetric Surgery. R. Peterson, Ann Arbor, Mich.
99 *The Menopause: Analysis of 200 Cases. C. C. Norris, Philadelphia.
100 The Forceps Operation. E. McDonald, New York.
101 Enteroptosis. I. S. Stone, Washington, D. C.
102 Malpresentation or Malposition not the Cause, but the Symptom of Dystocia. C. A. von Ramdohr, New York.
103 *Malformation Identical in Both Arms. C. R. Stockard, New York.
104 Two Cases of Tubal Pregnancy. A. L. Smith, Montreal.
105 Colpoceliotomy and its Place in Pelvic Surgery. K. I. Sanes, Pittsburg.
106 *Extirpation of Upper Portion of Rectum and Sigmoid. T. B. Noble, Indianapolis.
107 Malignant Tumor of Undescended Testicle. O. G. Pfaff, Indianapolis.
108 Gangrene of the Gall-Bladder. M. A. Tate, Cincinnati.
109 Retrodeviations of the Uterus and their Medical and Surgical Treatment. G. K. Dickinson, Jersey City, N. J.
110 Operation for Cystocele that has Given Satisfactory Results. F. Reder, St. Louis, Mo.
111 Diabetes in Children. J. Rudisch, New York.
112 Diagnosis of Typhoid in Young Children. G. N. Acker, Washington, D. C.

99. **The Menopause.**—Of the 200 women forming the basis of Norris' paper, 136 were married at the time of the menopause; 30 were widows, and 34 were spinsters. The average age at which the menopause appeared among the married women was 48.99 years; among widows, 47.75 years, and 46.93 years among spinsters. The average duration of the menopause was 11.46 months. In 68 per cent. the menopause lasted between 10 and 12 months, and in but 5 per cent. of the cases did the menopause last more than 16 months.

The clinical lesson to be learned from this, says Norris, would seem to be that the menopause lasting more than one year is unusual, and that if this period be extended to 14 months it is so rare among normal women that a thorough physical and pelvic examination is indicated.

103. **Malformation Identical in Both Arms.**—Stockard describes this condition as follows: The upper arm appears normal until the elbow joint is reached, here an ankylosis or some unusual structure prevents the free movement of the forearm so that it remains in a flexed position and cannot be extended. A loose fold of skin extends for several centimeters between the upper arm and forearm, suggesting the patagium of a bird's wing. So far as a superficial examination can show, the forearm has only one bone, presumably the radius. The condition of the carpus bones cannot be determined though the narrowness of the wrist region would lead one to suppose that only one or two existed. One metacarpal and one two-jointed finger is all that represents the hand. This digit is probably a thumb, since two instead of three digital segments are present; it also approaches a thumb in size and possesses a wide flat nail. Thus, one of the forearm bones is absent and all of the hand except one metacarpal and the thumb. The point of particular interest is that both arms present exactly the same condition.

106. **Extirpation of the Rectum and Sigmoid.**—Noble reports four cases and emphasizes the advantages of the abdominal route over the sacral.

St. Paul Medical Journal

February

113 The Obstetric Forceps. F. Leavitt, St. Paul.
114 Etiology and Prophylaxis of Deafness. H. A. Beaudoux, St. Paul.
115 Circumcision. E. J. Abbott, St. Paul.
116 Prophylaxis of Venereal Disease. P. B. Cook, St. Paul.

University of Pennsylvania Medical Bulletin, Philadelphia

November

117 *The Custom of Delivering Inaugural Addresses: Discussion of Methods of Undergraduate Teaching in Different Countries. C. K. Mills, Philadelphia.
118 Intraperitoneal Hemorrhages From the Pelvic Organs in Women, Indistinguishable from the Hemorrhage of Extrauterine Pregnancy. B. C. Hirst, Philadelphia.
119 *Special Features Concerning Multiple Neuritis. A. R. Allen, Philadelphia.

December

120 *Relation of the Visual Field to the Investigation of Certain Psychoses and Neuroses. G. E. deSchweinitz, Philadelphia.
121 *Modifications in the Clinical Course of Typhoid Under the Influence of Menstruation and the Successive Menstrual Epochs; Treatment. A. Stengel, Philadelphia.
122 Purulent Meningitis Second to Pansinusitis; Operation; Recovery. W. G. Shields, W. G. Spiller and E. Martin, Philadelphia.
123 Investigations into Growth of Lymphosarcomata in Dogs. J. W. Hunter, G. M. Laws and L. Loeb, Philadelphia.

117. **Undergraduate Teachings in Different Countries.**—Mills concludes his address, which is well worth reading, as follows: In requirements for admission, Germany, France and England are still somewhat in advance of us, but this advance will be very little, if any, when our recently adopted requirements are in full action. In the matter of supervision and competition we could probably copy something from the French, in that of academic freedom, something from the Germans, especially as regards the last year or the last two years of the medical course. This should be not less than five years, a conclusion to which all thoughtful medical educators and students are coming. The fifth year, however, should be largely an elective one, although the degree could not be given until the end of this year, unless, indeed, we go back to our own original method and that which prevails to some extent at the present time in England, of first giving the degree of bachelor of medicine and after another year that of doctor of medicine. In conclusion, Mills says that good doctors and medical teachers and even great ones, have been produced by every method of medical instruction in vogue since and before the days of Stahl and Boerhaave. After all, the young man of good mentality and the right metal will find his way to the achievement of his ends under any method, although it is the duty of a school to make this the best possible.

119. **Multiple Neuritis.**—In reporting the history of seventeen cases, Allen deals with a few special features of multiple neuritis, to-wit: (a) Argyll-Robertson pupil; (b) involvement of cranial nerves; (c) involvement of the vagus; (d) changes in the upper motor neuron system; (e) involvement of the bladder and rectum; (f) muscular spasms; (g) inequality of the pupils.

In Case 1 the patient presented in life the appearance of tabes dorsalis. She had a perfectly developed Argyll-Robertson sign in both eyes. Examination of the spinal cord discovered no abnormality, but in the nerves and muscles the diagnosis of multiple neuritis was positive. This case, in Allen's opinion, makes the absence of the Argyll-Robertson symptom as a *sine qua non* in peripheral pseudotabes not tenable. In Case 10 the ophthalmologist reported a high-grade neuroretinitis without hemorrhage in both eyes. In Case 8, although there was no anesthesia in the distribution of the trifacial nerves, the points of exit of the supraorbital and infraorbital branches on each side were painful on pressure. Partial deafness was present in 3 cases.

In 3 cases the pulse varied between 110 and 140 a minute, with a temperature approximately normal. A number of the other patients had very rapid heart action, but it was either immediately before death or a high fever made it impossible for one to conclude that vagus involvement was the etiologic factor. In Case 11 there was present a moderately high fever of an irregular type—though tending to be up in the evening and down in the morning. In Cases 10, 12, 13 and 16, swollen axis cylinders were found in goodly number in the crossed pyramidal tracts of the spinal cord. In Case 14, there were found swollen axis cylinders not only in the crossed pyramidal tracts of the cord, but also in the motor pathway in the mid-olivary region of the medulla, and in the motor

cortex the large ganglion cells were involved in a pronounced axonal degeneration.

A true incontinence of bladder and rectum not due to a moribund state, apathetic or abnormal mental condition, and apparently consequent to a neuritis process, was present in two cases. The histologic examination of the cord was negative, with the exception of the axonal reaction in the anterior cornual cells, which is an effect of this neuritis and not a primary cord lesion. In one case, the incontinence came on 7 days before death; in the second case, 6 days elapsed before the end. In one case there was difficulty in starting the stream in micturition for three and a half months prior to death. Three presented incontinence of bladder and rectum for some time before death, yet the psychosis renders it unnecessary to exclude them from consideration. As to muscular spasm, or it might better be called motor irritation, in one case, twitching of muscles of the right lower limb began one month after the onset of the illness. This twitching was more than a fibrillary tremor, and looked like the jumping of entire muscles without producing the spontaneous movements of the limb spoken of by Remak and others. Very soon this muscular twitching gradually increased in extent and severity and in about 10 days from its onset had involved all 4 limbs and two abdominal recti. In another case, contractures of the lower limbs began to develop sufficient in severity to necessitate the use of splints. There was also tremor of the hands, and alcohol was the cause. In 3 cases Allen found a difference in the size of pupils. Alcohol was a factor in 2 of these cases.

120. **The Visual Field and Psychoses and Neuroses.**—According to de Schweinitz there is no form of visual field pathognomonic of neurasthenia, but, other things being equal, a typical fatigue field is an important member of the symptom complex of this disease. Perimetric examination, he says, has a certain value in the differential diagnosis of hysteria and neurasthenia, inasmuch as a typical fatigue field of any of the varieties already named is more likely to be found in pure neurasthenia than in hysteria, while a stable concentrically contracted and tubular field, with inversion of the color lines, is a strong indication of hysteria, but such a visual field is not diagnostic of this psychosis, as it may be produced by the other conditions already named. Fatigue phenomena of the visual field are not limited to the periphery, but may appear in its center, and are equally important from a diagnostic standpoint. Certain varieties of central exhaustion scotomas are with difficulty distinguished from other central scotomas, the result of mild or attenuated forms of retrobulbar neuritis; in both instances it is possible that the phenomena depend on an edema of the optic nerve axis near the foramen.

121. **Typhoid Under Influence of Menstruation.**—For a long time Stengel has recognized a modification of the course of typhoid by the menstrual periods, and has found that on this account diagnoses of various complications including perforation and relapse have been made when these conditions did not exist; and he has seen measures of treatment applied with equal vigor and futility because exceptional severity of infection was suspected and the real cause of the aggravation of symptoms was overlooked. He has found that in young women and especially in girls soon after the establishment of menstrual life, the onset of typhoid is often unusually severe when it coincides with a menstrual period. It is, perhaps most decided when the menses fail to appear owing to the onset of the fever; but in some instances very severe symptoms occur, though the flow is normally established or excessive. The onset of these cases is more abrupt than is usual in the disease, the temperature often reaching its maximum immediately and for several days the fever may maintain the grade of hyperpyrexia. Nervous symptoms are prominent. Coldness, shivering, extreme sensitiveness to cold and to hydrotherapeutic measures, pain in the lower part of the abdomen, and sometimes hysterical manifestations are among the conditions he has encountered. Attempts at controlling the fever by cold water often increase the difficulties and add enormously to the patient's suffering. In three cases referred to recurrence of temperature was observed at the time of the next period after the onset of the fever. In all of the patients in whom active menstruation occurred at the onset of typhoid, and in whom the temperature was excessive, Stengel found that attempts at controlling temperature by cold water or other means have been only partially successful. When sponging or bathing has been used, the temperature has been uninfluenced, and, indeed, the nervous shock has sometimes caused increase of fever. The employment of cold in these cases should be carefully considered and often modified or discontinued. The nervous shock and reaction may be distinctly harmful. In some cases sponging or bathing in water of much higher temperature than that ordinarily used may accomplish for these patients all that is obtained from colder bathing in other persons or in the same patients later when the effects of the menstrual period have passed off. If actual hyperpyrexia occurs, the fever itself may be dangerous, and in such cases, Stengel has found that the use of sedatives, followed by modified hydrotherapy, is usually satisfactory.

Cleveland Medical Journal

February

124 Modern Aspects of Experimental Diabetes. J. J. R. MacLeod, Cleveland.
125 Tests for Insanity in the Probate Court. F. Higley, Cleveland.
126 Id. C. H. Clark, Cleveland.
127 *Clinical Value of Carbon-Dioxid Snow, with Demonstration of New Ice Compression Mould. W. I. LeFevre, Cleveland.
128 Treatment of Labor in Contracted Pelvis. E. O. Houck, Cleveland.
129 *Vaccine Therapy in Chronic Otitis Media. P. A. Jacobs, Cleveland.
130 Suspension of the Uterus Followed by Two Normal Deliveries: Findings at a Subsequent Abdominal Section. H. Robb, Cleveland.
131 Coagulation of Blood (continued). W. H. Howell, Baltimore.

127. **Carbon-Dioxid Snow.**—The compression ice mould used by LeFevre consists of a triple-barreled screw syringe, the two inner tubes are of brass, perforated with fine holes and between the two is a layer of chamois skin. The other tube is of fiber; being a non-conductor it does not become very cold. The syringe is screwed directly to the valve of the tank and the plunger is set so as to hold as much snow as is desired. The rapid evaporation of the liquid carbon dioxid produces such an intense cold that the cylinder is soon filled with snow. This is then compressed into ice, taken out of the mould and applied directly to the part. In the compression the temperature is reduced and the ice becomes hard and dry so it can be fashioned into any shape with a penknife. A cone of the ice about one-half inch long will last about 15 minutes in the open air and for about 60 minutes if wrapped in chamois skin.

129. **Vaccine Therapy in Otitis Media.**—Jacobs resorted to vaccine therapy in six cases with the following results: cured, 2; improved, 4; unimproved, none; treatment discontinued, 1; still under treatment, 3. These patients had not improved under the usual treatment. The vaccines employed were prepared after the method used in Wright's laboratory.

Louisville Monthly Journal of Medicine and Surgery

February

132 Cancer of the Intestine. J. G. Sherrill, Louisville.
133 Id. L. Frank, Louisville.
134 Delivery of the Placenta. H. A. Cottell, Louisville.
135 Difficulties in Diagnosis of Mild Hookworm Infection. C. C. Bass, New Orleans.

American Journal of Urology, New York

February

136 Metal Drainage Tube for Continuous Bladder Irrigation after Perineal Section for Prostatectomy. Removal of Intravesical Growths or Stone. H. G. Hamer, Indianapolis.
137 Radical Operation for Tuberculosis of the Male Genital Organs. G. S. Whiteside, Portland, Ore.
138 Vesical Calculus Removed by Repeated Crushing. G. K. Swinburne, New York.
139 Retention of Urine. F. Weisz, Budapest.
140 Sexual Intercourse: A Physiologic Interpretation. L. Jacobi, New York.
141 *Rebellious Bacteriuria. J. T. Geraghty, Baltimore.

141. **Rebellious Bacteriuria.**—Bacteriuria when persistent, Geraghty claims, is always due to organisms of slight pathogenicity. Bacteriuria due to the *B. coli* produces an acid urine—when due to the *Staphylococcus albus* it may be alkaline and give rise to troublesome phosphaturia. It is secondary to some focus in the urinary tract or neighboring organs. It may persist indefinitely despite all treatment without producing any inflammatory reaction on the part of the vesical

mucosa. The results of vaccine therapy are entirely negative as far as the staphylococcus is concerned, but possibly of some value against a colon infection.

West Virginia Medical Journal, Wheeling

February

142 The Public and the Physician. C. S. Hoffman, Keyser.
143 Early Diagnosis of Gall-Stone Disease. J. E. Cannaday, Charleston.
144 Case of Gall-Stones. J. E. Reader, Huntington.
145 Differential Diagnosis of Gall-Stones. L. H. Foreman, Buckhannon.
146 Digitalin. H. H. Redfield, Chicago.

Albany Medical Annals

February

147 The Tuberculin Test as Applied to a City's Milk Supply. G. W. Goler, Rochester.
148 *Treatment of Puerperal Eclampsia. J. L. Archambault, Cohoes, N. Y.
149 Puerperal Insanity. J. M. Mosher, Albany.
150 Antepartum and Postpartum Hemorrhage. H. J. Lipes, Albany.

148. **Treatment of Puerperal Eclampsia.**—Archambault favors the use of veratrum viride, which he says is far from receiving the attention and confidence it deserves. A point of prime importance in the use of veratrum viride is the dose and manner in which the drug should be given to obtain the best effects. The fluid extract should be preferred to the tincture, and the only logical way of administering it is hypodermically. It must be given in doses of from 20 to 30 minims. The dosage depends altogether on the rapidity of the heart action: with a pulse of 120 or above, nothing less than 25 minims should be given; a pulse of 100 calls for 20 drops, and with a pulse below 100 no less than 15 drops for the first dose. The maximum effect of the hypodermic injection requires about 30 minutes; this is manifested in the slowing of the pulse. If, within 30 minutes the slowing of the pulse has not been produced, the injection must be repeated in the same dose, and thereafter in gradually smaller and less frequent doses according to the effect received. To stop the convulsions the pulse must be slowed down to 60 or under, safer yet to 50, and kept there. The necessity for keeping the pulse below 60 is a point which cannot be insisted on too much. With a pulse below 60 there need be no fear of any more convulsions. Another point quite as essential is to keep the pulse below 60 for not less than 24 hours, repeating to that effect the hypodermics in doses of 5, 10 or 15 minims every time the pulse shows a tendency to rise above that rate. Except in cases of rather mild type or where the remedy yields an unusually lasting effect, the return of convulsions may have no other explanation than the too early cessation of the treatment.

Interstate Medical Journal, St. Louis

February

151 *Adrenal Therapy. C. E. deM. Sajous, Philadelphia.
152 Orchitic and Ovarian Therapy. G. Schmauch, Chicago.
153 *Taxis and Succussion—New Treatment for Intussusception. J. Zahorsky, St. Louis.

151. **Adrenal Therapy.**—The list of disorders in which Sajous has found adrenal preparations of great value in treatment are:

Addison's disease: In this condition adrenal preparations compensate for the deficiency of adrenal secretion, and therefore for deficient general oxidation, metabolism and nutrition. The dosage should be adjusted to the needs of each case. Beginning with 3 grains of the desiccated extract 3 times daily after meals, the dose should be gradually increased until the temperature and the blood pressure become normal, when the last dose should be maintained. Surgical heart-failure, collapse from hemorrhage, shock, asphyxia and submersion: Here the adrenal active principle (suprarenalin, adrenalin, etc.), as a catalyzer and a constituent of the hemoglobin, promotes energetically the intake of the oxygen and its utilization by the tissue cells, including the muscular elements of the cardiovascular system, and thus causes them to resume their vital activity. It should be very slowly administered intravenously, 5 minims of the 1 to 1,000 solution to the pint of warm (105 F.) saline solution. In urgent cases, 10 drops of suprarenalin or adrenalin in one dram of saline solution can be used instead, and repeated at intervals until the heart responds. Artificial respiration hastens its effects. The toxemias, including bacterial infections, surgical septicemias, etc., when collapse threatens, especially when a persistently low blood pressure, hypothermia and cyanosis, are present. Besides enhancing pulmonary and tissue respiration, the adrenal principle, administered in the same way, enhances the efficiency of the immunizing process.

Capillary hemorrhage from the pharyngeal, esophageal, gastric or intestinal mucous membrane: The mastication of tablets of adrenal substance in 5 grain capsules arrests the flow by causing active metabolism in the muscular elements of the arterioles of the mucosa and constriction of these vessels.

153. **Taxis and Succussion in Intussusception.**—The technic of the combined taxis and succussion method employed by Zahorsky is as follows: The patient is anesthetized with chloroform by an assistant. The abdomen is bared and a small pillow placed under the hips. The tumor is grasped through the abdominal wall and firmly compressed for a few moments in order to reduce the swelling to some extent, since it is the hyperemia and edema that prevent reduction. Then the thighs are flexed on the abdomen, the knees or legs grasped, and with a rapid up and down movement the lower part of the trunk is vigorously shaken for several seconds. Then the tumor is grasped again and compressed, then pushed against any part of the posterior abdominal wall, the fingers push, or strip, the intussuscipiens out of the intussusceptum. The fingers at the same time should make a trembling motion which assists in the reduction. After a few moments of taxis the succussion is again resumed. The efforts of taxis and succussion follow each other alternately. The succussion method is very much assisted by the presence of some water in the transverse colon, which should be injected if reduction does not occur promptly. Zahorsky has successfully used this technic in two undoubted cases of intussusception.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

February 19

1 The Cerebellum and its Affections. J. S. R. Russell.
2 *Effect of Bacterial Vaccines on Nutrition. L. C. Bruce.
3 Uses of Roentgen-Rays in Diagnosis and Treatment. J. Metcalfe.
4 Cases Illustrating Surgery of the Jejunum. E. R. Carling.
5 *Thyroidectomy. F. P. Sturm.
6 *Causes Determining Production and Distribution of Eruption in Typhoid. J. P. H. Greenhalgh.
7 Value of Ball's Operation for Pruritus Ani. P. Leighton.
8 *Use of Adrenalin in Acute Asthma. C. Matthews.
9 New Form of Mercury Sphygmometer. L. Hill.

2. **Bacterial Vaccines in Nutrition.**—The most common bodily disorder to be noticed in patients suffering from nervous diseases of the type of neurasthenia and the insanities, Bruce believes to be failure of nutrition; 90 per cent. of the sufferers from functional nervous disorders are thin and poorly nourished. Some of these patients actually die of starvation in the midst of plenty, while others linger on from year to year obstinately resistant to all forms of dietetic treatment. The subject of nutrition, therefore, is an important one for the physician. In maniacal states, Bruce found that the blood, as a rule, contains agglutinins to streptococci, which agglutinins are not often present in the blood of healthy persons. The streptococci which these patients agglutinated were obtained either from the blood, urine or feces. It occurred to him that it might be well worth while to try vaccine therapy in such cases if no improvement followed the usual methods of treatment. He made a polyvalent vaccine from 7 different varieties of streptococci and treated 11 cases of mania with injections of from 7,000,000 to 10,000,000 cocci, given at intervals of 2 weeks. Of these patients, 8 had been ill for over a year, and of the remaining 3, one was a recent admission, while the other 2 had been resident in the hospital for more than 3 months, without showing signs of improvement. Of the 8 chronic cases, 2 patients recovered, and of the 3 more recent cases, 2 patients also recovered. The fact, however, which most impressed him, was that the injections of vaccine apparently stimulated nutrition, as 8 out of these 11 individuals markedly increased in weight.

5. **Thyroidectomy.**—Sturm prolongs the ends of Kocher's "collar incision" upward for a couple of inches toward the angle of the jaw thus permitting the all-important superior thyroid vessels to be secured at an early stage. For his material he favors ordinary linen thread well boiled and stored in an alcoholic solution of phenol. Local anesthesia is employed.

6. **Causes of Eruption in Typhoid.**—Greenhalgh maintains that the inhibition of the vasoconstrictor and other nerves in the reflex zone in typhoid is due to the reflex incidence on them of specific impulses originating in the small intestine, mesenteric glands and spleen. The rose spots do not appear until the depression of the vasoconstrictor fibers has become well established and the specific agglutinins in the blood have become demonstrable by the Gruber-Widal reaction. As the arterioles relax, the blood pressure in the terminal capillaries becomes increased, and the circulation retarded. It is also possible that the endothelial cells of the capillaries being weakened by the depression in function of their intrinsic nerves, the increase in blood pressure brings about some passive dilatation. The influx of a greater volume of blood to the skin in the reflex zone brings a correspondingly greater number of bacilli to the cutaneous capillaries, where the sluggish flow of blood, and the impaired resistance of the endothelial cells, permit them to loiter in the capillary network. There they are joined by others; the agglomeration being due partly to the inherent tendency of the bacilli to compose themselves into groups whenever possible, but chiefly in the clumping power of the blood as the agglutinins come to be liberated therein. The assembly of bacilli thus formed sets up inflammation which becomes visible as the circular slightly raised rose spot, fading on pressure. Bacteriolysins continue the work begun by the agglutinins, and, in a little time, the assembled bacilli are devitalized, dispersed and disintegrated; the point of inflammation subsides and the rose spot fades.

8. **Adrenalin in Acute Asthma.**—Matthews has used adrenalin solution in thirteen cases of acute asthma; the results have been immediate relief, lasting for longer or shorter periods. In none of these patients has he observed any undesirable after-effects. The treatment consists of spraying into the nose a solution of adrenalin chlorid varying in strength from 1 to 1,000 to 1 to 4,000, according to the severity of the case.

Lancet, London

February 19

10 Control of Scarlet Fever. F. G. Crookshank.
11 *Surgical Treatment of Duodenal Ulcer. L. A. Bidwell.
12 *Results of Remineralization in Conditions of Faulty Metabolism such as Neurasthenia. H. Higgins.
13 Infantile Types of the Temporal Bone and their Surgical Importance. A. H. Cheatle.
14 *Lymphatics of the Testicle. J. K. Jamieson and J. F. Dobson.
15 Perforative Peritonitis Originating in Pouches of the Large Intestine. G. Taylor and C. E. Lakin.
16 Spinal Meningitis Resembling Tumor of Spinal Cord; Laminectomy; Recovery. R. Roper.
17 Two Consecutive Perforations of a Peptic Jejunal Ulcer Following Gastrojejunostomy for a Perforated Gastric Ulcer. A. E. Maylard.
18 Rupture of the Uterus Treated by Suture of the Rent Through the Vagina and Drainage. H. J. Paterson.
19 The Circulatory System (continued). H. Campbell.

11. **Surgical Treatment of Duodenal Ulcer.**—It is explained by Bidwell that in cases of perforated ulcer the result depends almost entirely on the interval which has elapsed between the perforation and the operation. Patients operated on within six hours of perforation practically always recover, those operated on within twelve hours recover in most cases, and beyond this time the prognosis is doubtful. In cases of hemorrhage, the prognosis is always grave, as the condition is desperate, and although operation holds out a good hope of success, the mortality will always be from 10 to 15 per cent.

In operations for cicatricial contraction, the results are most successful, the mortality is practically *nil*, except in debilitated patients. In no class of stomach operation are the results so good, as the patients regain perfect health. In cases of ulcer without urgent symptoms, the mortality is slight and is confined to accidents such as pulmonary embolism, etc.; the permanent results are most satisfactory. Of Bidwell's patients 85 per cent. are completely cured, and the remainder derived great benefit. In his earlier cases he had some trouble from vicious circle, but these were cured after an enteroanastomosis. He has also had two recurrences after simple gastroenterostomy; but he has not had any since he occluded the pylorus in addition to the gastroenterostomy.

12. **Remineralization in Faulty Metabolism.**—This paper is a continuation of Higgins' work on blood pressure, chlorin retention and dechlorination, hyperacidity and variations in the starch ration. He cites a number of cases in which his so-called remineralization treatment proved most effective. The study is most interesting, but too detailed for abstracting purposes.

14. **Lymphatics of the Testicle.**—Jamieson and Dobson found on dissection that the arrangement of the lymphatics of the testicle is such that the complete removal of the lymphatic area is exceedingly difficult and dangerous, if not impracticable. When the right testicle is diseased in some fortunate cases it may be feasible to secure all the primary glands if these happen to lie superficially on the vena cava to its outer side, and between it and the aorta. For this, the transperitoneal method appears to be preferable to the retroperitoneal exposure of Bland-Sutton. The operation appears to be feasible, and in a suitable case should be attempted, but it must not be regarded as a truly radical method, as in only a small proportion of cases will it be possible to secure all the primary glands. When the disease is on the left side the intimate relations of the glands to the inferior mesenteric vessels and the renal vessels, and the fact that many of them lie under the duodenum, appear to forbid even a partial operation.

Medical Press and Circular, London

February 16

20 Principles of Clinical Medicine. R. Lepine.
21 *The Leech in Medical Treatment. E. Weil.
22 The Science of Life. W. R. MacDermott.
23 Importance of Early Diagnosis of Tabes and Cerebrospinal Syphilis. T. A. Williams.

21. **Leech in Medical Treatment.**—The results of the application of leeches in human beings, according to Weil, determines fugitive, local acute hemophilia comparable, up to a certain point, with the constitutional hemophilia determined by the intravenous injection of extract of leeches in the rabbit. The bleeding after leech bites persists because the blood has been rendered locally uncoagulable. It thus differs clearly from bleeding by wet cupping, which is small in amount, and of brief duration and, therefore, has no observable effect on the coagulability. The application of leeches, determining as it does, steady, prolonged bleeding, is not associated with any constitutional disturbance. It consequently presents all the advantages of phlebotomy without its drawbacks and inconveniences. It need not be regarded askance because as a matter of fact the bites never become infected. Inasmuch as the amount of bleeding depends on the anticoagulating substance injected into the wounds, hemorrhage may occur just as readily in phlegmasic as in other patients. Like phlebotomy, the application of leeches will relieve congestion, cause dyspnea to subside, and lower the temperature. It may, therefore, take the place of phlebotomy, except in acute cases of uremia, acute edema of the lung, etc., in which the immediate withdrawal of a large quantity of blood is imperatively called for.

Clinical Journal, London

February 16

24 *Puerperal Eclampsia. G. E. Herman.
25 Etiology and General Pathology of Diseases of the Nervous System. J. S. Bury.
26 Treatment of Diseases of the Eye with Thyroid Extract. P. Dunn.

24. **Puerperal Eclampsia.**—At present, in cases of eclampsia seen early, Herman's opinion is that no better results have been obtained than those following the administration of morphin. For a patient with eclampsia who between the fits is restless and excitable, morphin is the best treatment. The drug should be used liberally, half a grain to begin with; if

the patient is not quiet within half an hour he gives another half grain. He gives the morphin in large doses, from half a grain up to two grains, or even more—enough to keep the patient quiet. In the Rotunda Hospital, Dublin, from 1889 to 1892 when the patients were not treated by morphin, the mortality was 35.3 per cent. From 1892 to 1905 they were treated by morphin. Seventy-one cases occurred during those years and the death rate was 16.9 per cent.—less than half what it had been before the treatment by morphin was introduced. Treatment by morphin is less troublesome than treatment by bleeding or by saline infusion.

The methods which Herman thinks are likely to give the best results are morphin with infusion of saline fluid. Bleeding should only be done if the tension of the pulse is high. If saline infusion is done, it should be by the method of Barnard, the fluid being allowed to run slowly into the cellular tissue and not quickly enough to form a painful swelling.

Journal of Obstetrics and Gynecology of British Empire, London

January

27 Primary Carcinoma of the Fallopian Tube. A. Doran.
28 Spread of Carcinoma by the Fallopian Tube. B. Glendining.
29 Primary Cancer of the Fallopian Tube. H. R. Spencer.
30 Primary Carcinoma of Fallopian Tube Associated with Acute Inflammation. W. Tate.
31 Carcinoma of Fallopian Tubes, Right Ovary and Appendix. W. Tate.
32 Malignant Papilloma of the Fallopian Tube. T. P. Legg.

Archives des Maladies du Cœur, etc., Paris

January, III, No. 1, pp. 1-64

33 Esophageal Pulsation in Man. (Etude critique de la pulsation oesophagienne chez l'homme.) A. Clerc and C. Esmein.
34 Prevailing Theories in regard to Blood Production. (L'hématopoïèse d'après les données actuelles.) J. Rieux.

Bulletin de l'Académie de Médecine, Paris

February 8, LXXIV, No. 5, pp. 113-136

35 *Discussion of Antityphoid Vaccination. A. Chantemesse, Landouzy and others.
36 Complement-Fixation Reaction a Reliable Test in Diagnosis of Tuberculosis. Marmorek and Widal.

35. This discussion of antityphoid vaccination was mentioned in the Paris Letter in THE JOURNAL, March 5, page 804.

Presse Médicale, Paris

February 9, XVIII, No. 12, pp. 97-104

37 Successful Vaccine Treatment of Colon Bacillus Infection of Urinary Passages. O. Wulff.
38 Present Accepted Division of Urinary Apparatus into Segments Incorrect. Proposed Segmentation Applicable to all Mammals. (Les segments du tube urinaire.) A. Policard.
39 Dosage of Epinephrin. (A quelles doses faut-il prescrire l'adrenaline?) A. Martinet.

February 12, No. 13, pp. 105-120

40 *Prophylaxis of Contagious Diseases: Disinfection. P. Desfosses and L. Lagane.
41 *Bacillus-Carriers and Prophylaxis of Typhoid Fever in the Army. (Les porteurs de germes et la prophylaxie.) G. H. Lemoine.
42 *Is it Safe to Drink Bottled Wine from the Inundated Wine Cellars? (Peut-on boire le vin des caves inondées?) H. Roger.
43 *The Seine Floods Have Had No Influence on the Frequency of Typhoid Fever in the Past. (Les crues de la Seine n'ont aucune influence sur la fréquence de la fièvre typhoïde.) J. Bertillon.

40. **Prophylaxis of Transmissible Diseases.**—Desfosses reviews each of the contagious diseases in turn, the mode of contagion and resistance of the virus, and then classifies them according as contagion occurs by way of the dejecta, the nasal and bronchial secretions, the skin and its secretions, the blood, or pus and soil containing spores. In discussing the preferable methods for disinfection during and after the disease, he declares that the active collaboration of the physician in charge of each case is necessary, the prophylaxis of transmissible disease being at present essentially medical.

41. **Bacillus-Carriers and Prophylaxis of Typhoid in the Army.**—Lemoine has had the blood examined in every case of febrile gastrointestinal disturbances and jaundice in his service at Val-de-Grâce during the last three years, and he found the typhoid bacillus in 40 per cent. of the cases although there was nothing otherwise at the time or later to suggest typhoid. This experience has convinced him that unsuspected abortive or occult forms of typhoid infection are much more common than is generally realized. This source of infection can be discovered only by systematic examination of the blood in all febrile gastrointestinal disturbances. When the germs of typhoid or diphtheria are found in apparently healthy individuals examination will generally reveal some persisting sequels of the disease, responsible for the survival of virulent germs, and until these sequels are cured the patient should be regarded as comparatively dangerous. Lemoine is convinced that the majority of affections tending to production of gall-stones owe their inception to preceding typhoid infection. Unless healthy bacillus-carriers eliminate large numbers of typhoid bacilli he does not think that special measures need be taken against them.

42. **Can Germs etc., Penetrate Into a Corked Wine Bottle.**—Roger replies to this question in the negative, relating experiments which demonstrated that germs are unable to enter a well-corked bottle. Even if the cork is defective the bactericidal action of wine promptly destroys entering germs, at least, he says, when they are not in larger numbers than in the Paris flood water.

43. **No Recrudescence of Typhoid After Paris Floods in the Past.**—Bertillon gives the statistics of the incidence of typhoid in the months following previous floods, showing that the proportion of cases was even less than usual. The recent flood occurred at a time when typhoid fever is fifteen times less prevalent than it was in the periods of the other floods. Another favorable factor is that in the present flood only one main sewer burst; the others bursting were merely the separate drains into the single buildings, and it is scarcely probable that the connected building contained a case of typhoid at the time. However, special measures have been taken for sterilization of buildings known to have recently harbored typhoid patients.

Semaine Médicale, Paris

February 16, XXX, No. 7, pp. 73-84

44 Advantages and Disadvantages of Surgical Treatment of Simple Fracture of the Long Bones. (Le traitement chirurgical des fractures diaphysaires fermées.) R. de Bovis.

Lyon Médical, Lyons

January 23, XLII, No. 4, pp. 141-196

45 Two Cases of Acquired Hemolytic Jaundice. (Ictères hémolytiques acquis.) A. Monisset, J. Chalier and L. Nové-Josserand.

January 30, No. 5, pp. 197-268

46 Impotence, Tardy Infantilism and Epilepsy, all Developing after Trauma Affecting the Testicles at the Age of 18½ Years. L. Gallavardin and J. Rebattu.

Archiv für klinische Chirurgie, Berlin

XCI, No. 2, pp. 245-542. Last indexed March 5, p. 824

47 *Surgical Treatment of Tuberculous Mesenteric and Bronchial Glands. H. Thiemann.
48 Rotation and Torsion of Spine in Reaction to Bending. (Rotation und Torsion der Wirbelsäule als Reaction auf Verbiegung.) H. Sellheim.
49 Bilateral Cleft Hand and Foot with Partial Defect in the Pectoralis Muscles. (Beiderseitige Spaltfuss und Spalthand.) O. Orth.
50 *Operative Treatment of Injuries of the Lungs. (Lungenverletzungen.) E. v. Möller.
51 Malignant Granuloma. E. Fabian.
52 Contusions and Distorsions of the Spine and Their Consequences. (Klinische Studie über die Contusionen und Distorsionen der Wirbelsäule und ihre Folgezustände an der Hand von 56 Fällen eigener Beobachtung.) G. Müller.
53 *Bile Bronchus Fistula. (Gallen-Bronchus-Fistel; Laparotomie; Heilung.) O. Klauber.
54 Stasis Cyanosis from Compression of the Trunk. (Stasebluntungen bei Compression der Brust und des Unterleibes.) A. Kock and H. Rönne.
55 *Peptic Ulcer of the Jejunum after Gastroenterostomy. P. H. van Roojen.
56 *Bacteriologic Importance for Aseptic Surgery of the Glands in the Skin and their Secretions. (Bakteriologische Bedeutung der Hautdrüsen und deren Sekrete bei der aseptischen Chirurgie.) L. C. P. Ritchie.
57 Surgery of the Blood Vessels. (Zur Gefässchirurgie.) Krüger. Continued.
58 Changes in Position of Stomach and Intestine from Anomalies in Early Embryonal Development. (Variationen der Lage des Magens und Darmes in Abhängigkeit von Abweichungen in der Entwickelung in frühester Keimperiode.) W. N. Sawin.
59 The Pseudodiphtheria Bacillus in Suppuration in Man. A. D. Pawlowski.
60 Technic for Interileo-Abdominal Exarticulation. Axhausen
61 Free Fascia Flap to Close Gap in the Dura. (Zur Frage des plastischen Ersatzes der Dura mater.) M. Kirschner.

47. **Operative Treatment of Glandular Tuberculosis.**—Thiemann gives the particulars of 26 cases; in all but one the mesenteric glands were involved. In 9 cases the patients were adults but the syndrome was similar to that most com-

mon in children, while in 4 children the type was that of the adult form. The communication issues from Riedel's surgical service at Jena. In one case a bronchial gland was the one involved; he thinks that this is the first case on record of primary bronchial glandular tuberculosis with operative treatment. The lung was not involved and complete recovery followed. The patient was a young man and the cheesy and calcified bronchial gland was in the hilus of the lung; the fistula opened in the third intercostal space. Thiemann gives the details of 12 cases followed to date or with autopsy in 4 cases. The cures have been complete, the intervals since operation ranging from 1 to 13 years.

50. **Operative Treatment of Injuries of the Lung.**—Möller reports 90 cases of injury of the lung including 48 gunshot wounds, 19 stab wounds and 23 contusions. Operative treatment in 64 cases saved all but 32.8 per cent. of the patients. Surgical intervention is indicated in cases of severe primary hemorrhage or persisting repeated hemorrhage, severe pneumothorax and emphysema in the cellular tissue and secondary pneumothorax.

53. **Bile-Bronchus Fistula and Hydatid Disease.**—Klauber reports a case in which expectoration of bile suddenly occurred ascribed to a gall-stone fistula. It ceased after cystostomy, but recurrence of obstruction in the bile ducts, two years later, led to cystectomy. The operation was nearly completed when the discovery was made of an echinococcus process in the liver which it was found had been the source of the trouble all the time, the passage of its products being responsible for the obstruction of the ducts. The soft mass which had been assumed to be a gall-stone must have been cyst-membranes, incrusted. In a second case the diagnosis of chronic cholecystitis from gall-stones was not confirmed by the laparotomy and recurrence of symptoms was followed by obstruction of the drain with echinococcus cyst products. In still another case a man of 52 had been treated for years on the assumption of gall-stones until the echinococcus cyst broke through into the chest. All the patients were cured by the operation, but in the first two cases chance alone disclosed the true nature of the lesion, unsuspected even when the abdomen had been opened.

55. **Peptic Ulcer in the Jejunum After Gastroenterostomy.**—Roojen gives the details of 12 cases of this kind that have been observed in Holland, including 4 from Rotjan's service. He also reviews 89 cases that have been published earlier. The lesion seems to be rare among the well-to-do, only one case each being known in a merchant, a physician, a lumberman and a journalist in the 27 cases in which the occupation is mentioned. In the cases with only vague local and general disturbances differentiation was impossible. Another group includes the cases in which perforation peritonitis developed sooner or later after the gastroenterostomy, but the most common form is that in which a chronic adhesive peritonitis induces the production of a tumor which in turn causes infiltration in the abdominal wall, generally in the left rectus abdominalis between the umbilicus and costal arch. The symptoms are mainly severe pain, persistent or spasmodic, generally located in the epigastrium. The attacks of pain do not coincide with the ingestion of food. The pain radiates toward the back and the region becomes tender. Sometimes the pain is relieved by moist heat and an ulcer diet. In 6 of the 41 cases in this group a fistula developed and in 3 there was merely an abscess. Sometimes the pain was more severe at night. Vomiting was a frequent symptom, as also signs of stenosis, but vomiting of blood was rare. In all these cases the ulcer developed after anterior gastroenterostomy. In 9 cases the adhesions were with the colon instead of the abdominal wall; sudden vomiting and diarrhea and sometimes colic are the first signs of trouble, and the patient rapidly loses weight. All but 10 patients were saved in the 51 cases of anterior gastroenterostomy, but 12 died in the 22 with posterior operation. All but 2 were saved of the 7 patients with perforation, while in the 8 non-operative cases the patients all died as also in 3 of the 8 cases of perforation into the colon. In the 42 cases of adhesion to the abdominal wall one patient died in the 7 non-operative cases and 4 in the 34 operative; there was recurrence in 13 in this group. Roojen is convinced that the manipulation of the bowel during the gastroenterostomy is responsible for the ulceration later. Trauma and predisposition are undoubtedly the main factors, although hyperchlorhydria and lack of the normal moistening with bile and pancreatic juice evidently cooperate. The gastric juice has a destructive action when it reaches a raw surface, and consequently it is of the utmost importance in prophylaxis of peptic ulcer not to submit the bowel to any trauma. With extreme precautions in this line there has been no tendency to peptic ulcer in the last series of 49 gastroenterostomies. After the operation it must be borne in mind that the stomach is diseased, and antacid measures and careful dieting are imperative until the conditions are approximately normal once more.

56. **The Sweat Glands and Aseptic Surgery.**—Ritchie reports research which demonstrates, he thinks, that the outward current of sweat and sebum effectually prevents the penetration of bacteria into the pores and skin glands under normal conditions. Even in the hair follicles the bacteria do not penetrate so deep as to be beyond reach of ordinary mechanical sterilizing measures.

Berliner klinische Wochenschrift

January 31, XLVII, No. 5, pp 177-228

62 The Hufeland Centennial. (Aquea aus der Materia medica von Hufeland.) L. Brieger. (Hufeland's Anschauungen über die Scrophulose, nebst Randglossen.) O. Heubner.
63 *Peptic Ulcer in the Esophagus and Duodenum. C. A. Ewald.
64 *Pleuritic Dulness and the Paravertebral Triangle of Dulness. (Pleuritische Dämpfung und paravertebrales Dreieck.) A. Goldscheider.
65 *Increased Longevity. (Makrobiotik.) D. v. Hansemann.
66 *Appendicitis on Left Side. (Ueber Perityphilitis auf der linken Seite.) F. Karewski.
67 *Proposed "Black List" for Mishaps from New Drugs and Measures. (Zum "Nil nocere" in der Neurologie.) H. Oppenheim.
68 *Influenza and the Heart. (Grippe und Herz.) J. Ruhemann.
69 Idiopathic Renal Hemorrhage and Renal Hemophilia. (Ueber essentielle Nierenblutungen und renale Hämophilie.) H. Senator.
70 General and Clinical Importance of General Asthenia. (Ueber den Habitus asthenicus und seine klinische Bedeutung.) H. Strauss.

63. **Peptic Ulcer in Esophagus and Duodenum.**—Ewald reports 2 cases of peptic ulcer in the esophagus; one was before the era of esophagoscopy and gastrostomy was done to relieve stenosis above the cardia and also stenosis at the pylorus. The other patient was a man of 32 with violent pain in the lower third of the esophagus directly after eating, the pain radiating to the shoulders and down to the epigastrium. The esophagoscope revealed the extensive defect with a prominent edge and smooth red ground, the esophagus being spasmodically contracted below. There was no swelling of the glands or cachexia, or history of trauma—a trauma generally leaves a linear trace. The complete cure under treatment as for a gastric ulcer confirmed the non-malignant character of the lesion. Differentiation is more difficult with a peptic ulcer in the duodenum, but lesions outside the intestine can be excluded as the cause of the special symptoms when blood is found in the stool, especially invisible blood on a meat-free diet. Visible hemorrhage is extremely rare. His experience with Einhorn's bucket test was disappointing; it seemed as if the bucket were retained in the stomach by spasmodic closure of the pylorus. He remarks that no one yet has diagnosed a peptic ulcer in the duodenum with the Roentgen rays. In his experience duodenal ulcer is far less frequent than Moynihan and Mayo have found. In only 1 of the 662 cases of gastric or duodenal ulcer in his service at the Augusta hospital, Berlin, was the operation performed on the presumption of a duodenal ulcer. He thinks that the hunger pain which some accept as a sign of duodenal ulcer is more likely to be the result of hyperchlorhydria and traction on the duodenum from the filled stomach or from its peristaltic movements; it is merely one link in the chain of symptoms to be considered. Ewald protests further against operative intervention until after failure of internal measures, resting the diseased part as completely as possible while giving food with the largest possible proportion of calories that can be ingested without irritation. For this he gives the usual ulcer diet supplementing it with pure olive oil or frozen butter balls which the patient swallows like a pill. He gives the reports of two cases in detail.

64. **Pleuritic Dulness and Paravertebral Triangle.**—Goldscheider illustrates the findings with loud, moderate and extremely delicate percussion in pleurisy which reveals different thicknesses of the accumulation of effusion. He explains that the displacement of the whole mediastinum by the fluid is responsible for the paravertebral area of dulness.

65. **Increasing Longevity.**—This discussion of the ways and means and the social desirability of lengthening the present natural span of life concludes with a warning against the present efforts to reduce infant mortality as these efforts are directed to save all the infants possible, without regard to their future value to the race. The survival of the fittest, he declares, is promoted by the natural infantile mortality which is one of the most important factors for the longevity of the surviving individuals. Efforts, he states, should be directed in the line of fostering and aiding to the utmost all the infants who in and for themselves promise to be of use to the race later but are prevented by external circumstances from thriving as they should. The cripples and the defective in other ways are only a burdensome ballast for the human race, he declares.

66. **Appendicitis on the Left Side.**—Karewski has encountered appendicitis on the left side in 10 cases; the colon was movable and the appendix exceptionally long, reaching over to the left iliac fossa.

67. **A "Black List" for Mishaps from New Drugs and Measures.**—Oppenheim refers more especially to neurology, his proposition being to have placed before the profession the mishaps that occur with new remedies and measures so that the individual physician in the individual case may know the balance-sheet to date and know what chances he is taking when he decides to give the patient the possible chance offered by the new remedy or measure. Oppenheim cites a number of typical cases to show the possible dangers from lumbar puncture, urging that this is far from being always an insignificant intervention. In 2 cases withdrawal of 2 c.c. of cerebrospinal fluid was followed by almost total blindness. The trouble proved to be a chronic circumscribed serous meningitis which was cured by an incision into the cyst, but the amaurosis still persists to date although not quite so complete as at first. In one case paralysis developed immediately after lumbar puncture the fourth day of acute poliomyelitis. In another case a fibroma was sucessfully removed from the spinal canal, but, before this, lumbar puncture had been done and immediately paralysis had followed. He also reports 2 cases of facial or peroneal paralysis after deep injections of alcohol for trigeminal or sciatic neuralgia, and refers to the cases of blindness from administration of atoxyl or arsacetin. He cites 4 cases of blindness from the latter and adds one from his own experience to the list. How to be protected against such mishaps with new remedies and measures is a subject that needs most careful study, and he suggests that possibly something might be accomplished if the medical weeklies and therapeutic journals would carry a special "black list" of such occurrences, reporting them in heavy type under a special heading, publishing them as early as possible and omitting none.

68. **Influenza and the Heart.**—Ruhemann calls attention to a form of influenza in which the entire syndrome seems to be restricted to the heart; this is especially liable when the heart is already defective. In many cases the heart affection may be causing no trouble until an attack of influenza or even influenza in the environment without appreciable personal symptoms may bring on a catastrophe. In one of the cases described, an apparently mild attack of influenza affecting the stomach was followed by a toxic paralysis of the previously well-compensated heart. He is convinced that possibly unsuspected influenza is responsible for many cases of idiopathic heart disease and sudden death for which no other cause can be discovered.

Deutsche medizinische Wochenschrift, Berlin

February 10, XXXVI, No. 6, pp. 249-296

71 *Tendency to Moral Insanity in Children. (Krankhafte moralische Abartung im Kindesalter.) G. Anton.
72 *Water in Treatment of Obesity. (Ueber den Wasserhaushalt bei Entfettungskuren.) E. Reiss and M. Meyer.
73 *The Blood in Exophthalmic Goiter. (Blutuntersuchungen bei Morbus Basedowii.) N. Roth.
74 *Treatment of Laryngeal Tuberculosis with Deep Roentgen-Ray Exposures. (Behandlung der Kehlkopftuberkulose mit Röntgenstrahlen; Tiefenbestrahlung.) M. Wilms.
75 *Epicondylitis of the Humerus. (Periostitis am epicondylus humeri.) Momburg.
76 Relative Lymphocytosis as Sign of Pseudoleucemia. (Wert des Pinkusschen Zeichens, ein Beitrag zur hämatologischen Diagnostik.) E. Fabian.
77 *A Few Whiffs of Chloroform plus Suggestion in Operative Gynecology. (Suggestivnarkose; eine neue Anwendungsform der Suggestion in der gynäkologischen Praxis.) B. Hallauer.
78 Optic Atrophy under Arsacetin. (Zur Beurteilung des Arsacetins—Ehrlich—und seiner Einwirkung auf den Sehnerven.) F. Hammes.
79 Tuberculous Pyopneumothorax Cured by Resection of Second to Eleventh Ribs. (Pyopneumothorax tuberculosus ambulans von vierjähriger Dauer.) P. Bull.
80 Dietetic Treatment of the "Exudative Diathesis." A. Schütz.
81 *Sun-Blindness. W. Feilchenfeld.
82 *Method of Relieving Overlapping Toe. (Redressement sich deckender oder gekrümmter Zehen.) A. Heermann.

71. **Moral Insanity in Children.**—Anton defines this as an abnormal lack of the higher emotions and of sympathy, morbid impulsiveness with unchecked yielding to impulse, an urgent longing to do forbidden things and exaggerated susceptibility to suggestion, especially from others of the same type. There may be, however, islands of intact reasoning and sentiments. The mild forms of catatonia also present these characteristics, as a rule, and this disease often should be classed with moral insanity. It is established beyond question, he asserts, that disease processes and anomalies in development may induce aberrations in the moral sphere alone and govern behavior accordingly. The moral perversity may develop in early childhood or at puberty or as a senile change; it is generally but not invariably permanent.

72. **The Fluctuations in the Water Content of the Body During Treatment of Obesity.**—Reiss gives the metabolic findings in a woman being treated to reduce obesity. Restriction to an exclusive milk diet caused great losses of water from the body, even when the patient drank water abundantly. When she was put on the Rosenfeld potato diet, water was retained in the body, notwithstanding that the amount ingested was reduced. On the milk alone there is comparatively no intake of salt, and water is eliminated freely, but on the potato diet, with some salt, water is retained to maintain the osmotic balance. If salt is added to the milk diet and no salt given with the potato diet, the conditions are reversed. Of course the ingestion of salt is not the only factor influencing retention of water, but it is the most striking and easily influenced one.

73. **Blood Findings in Exophthalmic Goiter.**—Roth remarks that the characteristic changes in the blood early in this disease are important for differentiation of the incipient and abortive cases. The proportion of hemoglobin is abnormally low, the number of reds normal or above while the number of whites is below normal. There are also lymphocytosis and mononucleosis.

74. **Roentgen-Ray Treatment of Laryngeal and Surgical Tuberculosis.**—Wilms reports a case of this kind which confirms the effectual action of deep Roentgen exposures in treatment of laryngeal tuberculosis, as he has already demonstrated for tuberculosis of bones and joints. During the last year and a half he has found this treatment all that was necessary for tuberculous processes in the fingers, hand, elbow, foot and ankle, in adults, dispensing entirely with curetting and resections. Tuberculosis of tendon sheaths in the elderly reacts promptly to the deep exposures. No injury of the skin from the rays has been observed with 100 exposures. The deep action is obtained by interposition of aluminum. He excludes children from this treatment if there is a possibility of injury of the epiphyses. As a rule he gives one full Sabouraud dose, the sitting being an hour long, repeated every three weeks. In the case of laryngeal tuberculosis reported the lesion healed completely after two sittings.

75. **Epicondylitis of the Humerus.**—Momburg has encountered 17 cases during the last year, 9 being in women; a traumatic factor was evident in every case. He does not agree with Franke's theory that the trouble is a nervous-muscular disturbance, but thinks that localized periostitis is responsible, probably the result of direct injury or muscular traction. The affection is similar to the "overuse periostitis" in

the legs from which soldiers are liable to suffer. Complete rest for the arm after the region has been painted with iodin has given the best results in his experience.

77. **General Anesthesia by Suggestion in Gynecology.**—Hallauer's method of combining suggestion with a minute amount of chloroform to induce general anesthesia was mentioned in these columns May 23, 1908, page 1760. He here describes extended use of the method in minor gynecologic operations and examinations, reporting good results. The idea is to combine a sham anesthesia technic with suggestion of painlessness and muscular relaxation, the patient believing that she is under the influence of the chloroform. The muscles may relax as in profound inhalation anesthesia, and childbirth be painless. In combination with spinal or local anesthesia mere suggestion may induce drowsiness and amnesia, and it may thus be useful, he asserts, as a preliminary to ordinary anesthesia. The combined sham narcosis and suggestion allows the patient to be influenced beyond what is possible under other conditions. The organic affection cannot be influenced, but the psychic reflection of the disturbance, the effect on the appetite and sleep, the dread of loss of earning power, etc., can be influenced by the suggestion and in many cases these are the factors that cause most of the trouble. He has cured of all their symptoms a number of patients with one or three sittings after they had been treated for years by competent gynecologists by all other means for chronic inflammatory changes in the pelvic organs. In other cases marked improvement was realized. The method is particularly useful, he says, when the diagnosis wavers between an organic and hysterical affection. The principal indications for it are functional disturbances in the sexual sphere, certain cases of vomiting of pregnancy and dysmenorrhea. The by-effects in hysterical women are sometimes disturbing, but in the healthy there are merely some drowsiness, oppression in the head and, in a few cases, slight vomiting. The vomiting was observed only in women who had taken chloroform before, and may have been due to autosuggestion.

81. **Air-Ships and Sun-Blindness.**—Feilchenfeld reports several cases of pain and scotoma in the eyes caused by the patients watching for hours the movements of an air-ship. In another case severe sun-blindness followed the application of the chemical rays from direct sunlight concentrated through a blue lens on a tooth which a dentist was trying to bleach. The exposure lasted for three hours and the patient had to center the rays from time to time himself, looking through the lens at the sun.

82. **Correction of Over-lying Toes.**—Heermann states that a strip of lead foil, cut to fit over the over-lapping toe and then carried around beneath and up over the outside of the toe on each side, is a simple, efficient and durable means for the purpose, causing no inconveniences. A strip of adhesive plaster may be used to hold the whole in place.

Fortschritte der Medizin, Leipsic

January 27, XXVIII, No. 4, pp. 97-128

83 Encephalitis in Children. R. Flachs.

February 3, No. 5, pp. 129-160

84 Treatment of Acute Otitis Media. (Behandlung der akuten Mittelohrentzündung.) A. Hartmann. Commenced in No. 4.

Jahrbuch für Kinderheilkunde, Berlin

February, LXXI, No. 2, pp. 123-248

85 Exanthem Elicited by Trauma in Children during Recovery from Scarlet Fever. (Erythema postscarlatinosum.) B. Schick.
86 Pernicious Anemia and Extramedullary Production of Blood in Infants. G. Koch.
87 Colles' Law and Seroreaction in Syphilis. (Das Collessche Gesetz und die neuen Syphilisforschungen.) W. Knöpfelmacher and H. Lehndorff.
88 Normal and Abnormal Development of Children. A. MacDonald (Washington, D. C.).
89 Serotherapy of Scarlet Fever. (Einfluss des Moserschen Serums auf den Verlauf und die Mortalität des Scharlachs.) S. J. Fedinski. Commenced in No. 1.

Medizinische Klinik, Berlin

February 6, VI, No. 6, pp. 207-248

90 Pain in the Ear. (Schmerzempfindungen im Bereiche des Gehörorganes.) E. Urbantschitsch.
91 Antitryptic Substances in Syphilis. (Antitryptische Stoffe bei Syphilis.) G. Stumpke.
92 Abnormalities of the Foot of the New-Born Infant and Treatment, especially by Massage. (Der Fuss des Neugeborenen und seine Behandlung.) K. Lengfellner.
93 Heredity from Standpoint of Modern Science. (Die Deszendenzlehre in der modernen Geologie.) F. Frech. Commenced in No. 1.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXI, No. 2, pp. 181-376. Last indexed March 5, p. 826

94 *Technic for Direct Gastroscopy and Findings Therewith. (Die Untersuchung des Magens mit dem Magenspiegel.) K. Loening and A. Stieda.
95 *Technic and Dangers of Physiologic Saline Infusion. (Studie über die Infusion physiologischer Salzlösungen.) A. Thies.
96 *Phloridzin Tests of Kidney Functioning. (Experimentelle Beitrag zur Phloridzinfrage in der funktionellen Nierendiagnostik.) A. Salomon.
97 *Systematic Tapping in Treatment of Hydrocephalus in Children. (Behandlung des Hydrocephalus mit konsequenter Punktion.) W. Kausch.
98 Iron Metabolism after Splenectomy. (Beitrag zur Lehre von den Funktionen der Milz.) R. Bayer.
99 Migrating Thrombophlebitis of Superficial Veins with Obliterating Thromboangiitis. (Thrombophlebitis migrans der oberflächlichen Venen bei Thromboangiitis obliterans.) L. Buerger (New York).

94. **Improved Technic for Gastroscopy.**—Loening and Stieda present some gastroscopic pictures which they think far surpass anything of the kind yet taken. The gastroscope they use is built on the principle that the esophagus can stretch laterally, and consequently an oval tube can contain the optic part leaving plenty of room on each side for the wires, etc. The tube is made stiff half way down and flexible the rest of the way; it is introduced with the patient lying on the right side with the head horizontal, supported by a bolster under the neck. The whole procedure, they say, is scarcely more disagreeable than an ordinary lavage of the stomach, the broad, comparatively flat, scabbard-shaped tube slipping in with comparative ease. Out of their extensive research and experience with this gastroscope they give the details of a few cases of various lesions in the stomach with the pictured findings.

95. **Dangers of and Improved Technic for Saline Infusion.**—Thies presents an array of arguments and facts to sustain his assertion that under certain circumstances saline infusion as generally done may prove directly dangerous. The danger is the greater, the more the alkaline metals in the cell are substituted by the sodium chlorid. Potassium and calcium salts are those most directly essential for the vital functioning of the cell, and hence in infusion, he declares, it is necessary to prevent these salts being crowded out by an excessive proportion of sodium chlorid. The three salts should be given together, he says, and in proportions corresponding to those in normal tissues, that is, about 0.6 per cent. sodium chlorid, 0.02 per cent. calcium chlorid and 0.02 per cent. potassium chlorid. This solution is a little hypotonic in respect to the blood serum, but this is counterbalanced by the absence of the dangers liable with an exclusively sodium chlorid solution. If it is desired to make the solution isotonic, as may be desirable when given subcutaneously, he advises increasing each salt proportionately, that is, 0.85 per cent. sodium chlorid and 0.03 per cent. each of the calcium and the potassium chlorid. Continuous rectal infusion he regards as the best way to introduce the artificial serum. Pure sodium chlorid solution (0.9 per cent.) must not be infused indiscriminately, especially not for small children, with affections in which there is considerable elimination of salt, in inanition from stenosis or other cause, in cachexia and in affections accompanied by changes in the kidneys, heart and vascular system. It is also dangerous in conditions in which there is retention of sodium chlorid or increased elimination of other salts, hence, in all febrile affections. Pure sodium chlorid solution should also be avoided when large amounts are to be infused. When the above mixture of several salts is given, the elimination of water and salts proceeds proportionately parallel. Pure salt solution often fails to induce diuresis in cholemic conditions, probably owing to toxic injury of the kidneys from the circulating bile in the circulation.

96. **Functional Kidney Tests.**—Both the phloridzin and indigo-carmine tests reveal merely the momentary functional condition of the kidneys, not the actual absolute functional capacity. The former especially may lead to erroneous con-

clusions, Salomon declares, and the other is not much more reliable; its superiority lies in the fact that it indicates more exactly the special anatomic lesion. He experimented on dogs, studying conditions by means of an opening into the bladder, the bladder mucosa being sutured to the skin in a funnel-shaped fistula, exposing the mouth of the ureter. Part of the connected kidney was then resected.

97. **Systematic Repeated Puncture in Hydrocephalus.**—Kausch commends anew systematic, repeated puncture of the ventricles in hydrocephalus in young infants and reports 2 cases. The benefit was striking in each, he states, and no infection followed. In the first case, in a five-months infant, he withdrew 3,035 c.c. in 13 punctures in the course of 44 days, the circumference of the head being reduced from 52.5 to 45.7 cm., the exophthalmos, choked disc and the incipient atrophy of the papilla subsiding. The infant then succumbed to an intercurrent enteritis. Autopsy revealed changes in the meninges, relics of an acute meningitis at the age of two months, and responsible for the hydrocephalus, there being no communication between the spinal and cerebral fluid. He thinks that systematic tapping is more effectual and much less serious for the child than the operations that have been proposed for hydrocephalus. The pressure in the fluid before and after the puncture should always be recorded, and the puncture should be repeated whenever there is a high positive pressure, if necessary every day, until the skull returns to normal size. With negative pressure, compression should be applied, but this should be avoided when the bones of the skull are closing up. Complete recovery followed in a case of meningitis in a young man after a gunshot wound; 295 c.c. of fluid were withdrawn in four punctures in the course of sixteen days.

Monatsschrift für Kinderheilkunde, Berlin

December, VIII, No. 9, pp. 513-584

100 *Experimentally Induced Secretion of Milk. (Ueber experimentelle Auslösung von Milchabsonderung.) K. Basch.
101 Pyloric Stenosis in Infants. (Ueber spastische Pyloruskontraktur der Säuglinge und angeborene Pylorusstenose, bezw. Pylorusenge.) W. Wernstedt.
102 *Children's Diseases and Tuberculous Family Taint. (Ueber Kinderkrankheiten mit bes. Beziehung zur familiären Belastung durch Tuberkulose.) G. A. Dotti.

100. **Experimentally Induced Secretion of Milk.**—Basch reports experimental research which has shown that the specific functioning of the breasts is independent of the nervous system; lacteal glands transplanted into the back of the animal secreted colostrum when the animal cast its young. With extracts of placenta and gravid ovary he has been able to elicit a secretion of milk in animals and in a few clinical cases.

102. **Children's Diseases and Tuberculous Family Taint.**—Dotti found a tuberculous family taint in 73 per cent. of the cases of pulmonary tuberculosis among 8,739 children at the Florence hospital: 62 per cent. in the peritoneal form and 52 per cent. in the form of chronic bronchitis. The influence of the tuberculous taint was also evident in other affections: in 50 per cent. of the tonsillitis cases; over 60 per cent. in Pott's disease and osteomyelitis and in 38.7 per cent. in the cases with adenoids. His table, he says, confirms the fact that in the morbidity of children those affections are most frequently encountered which are connected with a family tuberculous taint. He regards contagion from the environment as responsible for this, much more than heredity.

Münchener medizinische Wochenschrift

February 8, LVII, No. 6, pp. 281-336

103 *Tonsillectomy in Treatment of Rheumatism and other Infections. (Die tonsilläre Behandlung der sogenannten rheumatischen Erkrankungen.) P. Schichhold. (Beziehungen entzündlicher Mandelaffektionen zu Infektionskrankheiten.) H. Curschmann.
104 *Transverse Tracheotomy. O. Franck.
105 Advantages of Iodin Sterilization of the Skin. (Wert der Jodpinselung zur Desinfektion der Haut vor Operationen.) F. R. Brewitt. (Erfolge mit der ausschliesslichen Alkoholdesinfektion und der Jodtinkturdesinfektion.) Nast-Kolb.
106 Inheritance of Biochemical Structure and its Medicolegal Importance. E. v. Dungern.
107 Indifferent Results with Spengler's I. K. in Treatment of Pulmonary Tuberculosis. (Mitteilung über die Behandlung der Lungentuberkulose mit "I. K." Spengler.) M. Roth.
108 Tuberculin Treatment of Pulmonary Tuberculosis. (Zur spezifischen Therapie der Lungentuberkulose.) G. Richter.
109 Behavior of Animal Charcoal in respect to Lesions Caused by *Bacillus pyocyaneus*. (Verhalten der Tierkohle zum Bacillus pyocyaneus im Ohreiter und zu granulierenden Knochenwunden.) O. Muck.
110 Technic for Instillation into the Eyes. (Augeneinträufelungen: Winke für den Nichtspezialisten.) Wolffberg.
111 Indications for Extraperitoneal Cesarean Section. (Zur Indikationsstellung des extraperitonealen Kaiserschnittes.) C. Knoop.
112 Two Cases of Gunshot Wound of the Subclavian and Brachial Arteries. (Schussverletzungen der Art. subclavia und brachialis.) H. Luxembourg.
113 *Technic of Tamponing for Post-Partum Hemorrhage. E. Schwarzenbach.
114 Advantages of Potassium Permanganate in Treatment of Suppurating Processes. (Kalium hyperm. cryst. als gewebezerstörendes Mittel.) R. Blumm.

103. **Tonsillectomy in Treatment of Acute and Chronic Rheumatism.**—Gürich and Schichold have found suppuration in the tonsils almost a constant accompaniment of rheumatic affections. Gürich not only found the pus but by tonsillectomy succeeded in curing 98 out of 125 patients with articular rheumatism; the outcome is not known in 15 of the other cases. Schichold's experience has been equally decisive in a series of 70 cases; the pus was accumulated in actually measurable amounts in a number of individuals. An important point in these experiences is that in nearly every case the patients had never been aware of the tonsillitis and the discovery of pus was a surprise. The tonsils were apparently normal on casual inspection; not until the anterior pillars of the fauces were drawn aside was anything abnormal discovered, but then the pus exuded on the slightest pressure. The process in the tonsils these writers regard as responsible for the development of toxins that maintain the acute or chronic rheumatic pains. The only effectual treatment, they assert, is to remove the tonsil, leaving merely its flat base. The rapid and permanent subsidence of the pains confirms the etiologic connection of the follicular tonsillitis with the rheumatism. It is important at the same time to see that the teeth are put in good order. Schichold advises prompt tonsillectomy at the first attack of acute articular rheumatism. He has observed a number of instances in which an apparently mild attack was followed by the graver forms of heart disease. The germs responsible for many cases of articular rheumatism nest in the tonsil pus and pass thence into the blood. Cauterization or slitting the tonsil does not clear out all the foci, but its removal puts an end to trouble from this source. Other diseases besides rheumatism may be amenable to the same treatment. Curschmann has been teaching for twenty years the connection between follicular tonsillitis and nephritis, the latter resulting probably from the action of toxins generated in the tonsils. He preaches that tonsillectomy is the logical treatment.

104. **Transverse Tracheotomy.**—Franck gives an illustrated report of several cases of tracheotomy done with a transverse incision. It has a number of advantages over the longitudinal, he asserts; the wound gapes spontaneously after the transverse incision, immediate healing is more perfect and the scar blends into the folds of the skin in the neck.

113. **Treatment of Postpartum Hemorrhage.**—The tamponing is done through a wide cone-shaped speculum in one piece which prevents any contact of the gauze with the vulva or the walls of the vagina. The cervix is drawn down with special forceps, each blade being in the form of a hollow square.

Virchows Archiv, Berlin

February, CXCIX, No. 2, pp. 193-384

115 Relation between Coronary Arteries and the Papillary Muscles in the Heart. (Beziehungen zwischen Koronararterien und Papillarmuskeln im Herzen.) R. Amenomiya. Commenced in No. 1.
116 Case of Arteritis Nodosa. H. Beitzke.
117 Changes in Rabbit Aorta under Influence of Mercury, Lead and Zinc Salts Injected into a Vein in the Ear. (Veränderungen der Aorta bei Kaninchen unter dem Einflusse der Einführung von Quecksilber-, Blei- und Zinksalzen in die Ohrvenen.) P. Philosophow.

Wiener klinische Wochenschrift, Vienna

February 10, XXIII, No. 6, pp. 191-232

118 *Diagnosis and Treatment of Exophthalmic Goiter. (Morbus Basedowii.) F. Chvostek.
119 Influencing of Elastic Fibers by Tuberculosis. (Zur Frage der Beeinflussung des elastischen Gewebes durch Tuberkulose.) M. Oppenheim.

120 Modified Technic for Stovain Spinal Anesthesia. (Ein neues Verfahren bei Anästhesien durch Rachistovainisierung.) A. Poenaru.
121 Advantages of a Little Chloroform to Attenuate Pain with Normal Delivery. (Schmerzlinderung bei normalen Entbindungen.) J. Eisenberg.
122 *First-Aid in Electric Accidents. (Kasuistischer Beitrag zur Elektropathologie.) S. Jellinek.
123 Whooping during Expiration as Early Sign of Tuberculosis of Pulmonary Glands. J. K. Friedjung.

118. **Diagnosis and Treatment of Exophthalmic Goiter.**—Chvostek declares that nothing explains so well the Basedow syndrome as the assumption of functional disturbance in the thyroid. He has observed an abortive Basedow syndrome accompanying chlorosis and subsiding with the latter. In other cases tachycardia, tremor, a tendency to sweating and nervous irritability accompanying the chlorosis were probably merely the expression of the effects of the anemia in a neurotic subject. Similar syndromes are observed during the menopause, being the expression of changes in the circulation and nervous system—not true exophthalmic goiter. Cardiovascular neuroses may also be mistaken for the Basedow syndrome. The difference in the pulse, standing and reclining, is abnormally great; such cases, he says, should not be confounded with true exophthalmic goiter, not even if goiter develops or a tendency to protrusion of the eyeballs is manifest. The anamnesis, the variability of the cardiac phenomena and the irritability of the heart exclude exophthalmic goiter, as also the lack of changes in the heart itself. Lead poisoning may also simulate the Basedow syndrome, and certain cases of cholelithiasis present symptoms on the part of the heart deceptively simulating functional or organic heart disease. He knows of instances in which exophthalmic goiter had been diagnosed under these conditions, but thyroid functioning had nothing to do with them. In a recent case a patient with apparently typical exophthalmic goiter showed no improvement under the usual measures. The discovery of large proportions of fat in the stools and an abnormal appetite suggested some disturbance in the pancreas, and under pancreas organotherapy the entire syndrome rapidly changed for the better, the patients soon regaining full earning capacity. The improvement continued as long as the administration of pancreas extract was continued, but the symptoms returned when it was suspended: they were again banished by resumption of the pancreas extract. It is a question in this case whether the thyroid or the pancreas is primarily affected. Patience, rest, change of environment and especially a trip to the mountains have proved the main reliance in his experience with treatment of exophthalmic goiter, supplemented by gentle hydrotherapeutic measures. He has never derived any benefit from drugs in exophthalmic goiter; heart tonics generally aggravate the symptoms. Weeks, months or more may be required before satisfactory benefit is realized, but he has always accomplished it in time, and has never had to recommend operative intervention, although he admits that this is justified when internal measures fail or there is compression of the trachea or a long course of treatment is impossible or when the patient demands strumectomy on account of the disfigurement. In the cases in which the Basedow syndrome is only indirectly induced, an operation on the thyroid would do no good. He has never observed better results from Roentgen-ray treatment than have been attained with mere galvanization alone.

122. **First Aid in Electric Accidents.**—Jellinek reports several cases of electric accidents, calling attention especially to one case in which the victim was unable to release his hands from the live wire over his head as he stood on a cellar floor. Those who came to his assistance unwittingly did the right thing as, in order to release his hands, they lifted him up, thus breaking the connection with the ground.

Zeitschrift für Urologie, Berlin

February, IV, No. 2, pp. 81-160

124 *Suprarenal Tumor with Punctate Pigmentation. (Zur Klinik der Nebennierengeschwülste.) C. Adrian.
125 Syndrome Induced by Sponge Perforating into Bladder. (Symptomatischer Nachweis eines in die Blase durchgebrochenen Gazetupfers.) K. Roerig.
126 Cystoscope with Adaptable Interposed Lenses. (Neue Kystoskope.) O. Ringleb.
127 Technic of Application of Actual Cautery during Irrigation Urethroscopy. Kropeit.

124. **Suprarenal Carcinoma.**—Adrian has found records of punctate pigmentation, as in the case of suprarenal cancer described, in a number of cases of primary tuberculous processes in the suprarenals, cancer, simple hyperplasia, and also with hypernephroma. The punctate pigmentation may accompany diffuse brownish discoloration and be associated with other symptoms of Addison's disease. It seems reasonable, therefore, to class this punctate pigmentation with diffuse bronzing. None of the symptoms of Addison's disease is observed with kidney tumors except those of the hypernephroma type, thus confirming their connection with the suprarenal cell tissue. Some of the recent literature on suprarenal tumors is reviewed.

Zentralblatt für Chirurgie, Leipsic

February 5, XXXVII, No. 6, pp. 193-233

128 *Long Operations under Primary Ether Anesthesia. (Langdauernder Aetherrausch.) L. Moszkowicz.
129 *To Hasten Healing of Fistulas into the Bladder. (Behandlung der Blasenfistel.) B. Burmeister.

February 12, No. 7, pp. 233-272

130 *Intravenous General Anesthesia. (Zur Frage der intravenösen Narkose.) H. Küttner.

128. **Prolonged Primary Anesthesia.**—Moszkowicz states that he has succeeded in prolonging to an hour or more the stage of incomplete anesthesia in which sensibility is abolished but the patient is still able to respond to questions, give his name and look around, the condition resembling that of a tipsy man to such an extent that the general term for it in Germany is the "ether drunk," *Aetherrausch*. The anesthetist has to keep the patient in this befuddled condition while not allowing him to sink into the stage of actual deep anesthesia. Moszkowicz has performed major operations on the legs, abdomen, etc., with this anesthesia, the patients lying quiet, babbling unintelligibly and moving their heads, but otherwise not interfering with the progress of the operation.

129. **Treatment of Fistula into the Bladder.**—Burmeister glues up the wound in the bladder after an intravesical operation by applying soluble rubber to the spot to serve as a glue for a disc of rubber tissue. As soon as this disc has dried another is applied on top of it, continuing in this way until the cover is thick and firm enough to hold. A compressing bandage is then applied above and the patient is allowed to get up. This dressing generally holds for twenty-four hours without any oozing of urine, and the incision heals promptly under it.

130. **Thrombosis with Intravenous General Anesthesia.**—Küttner has applied the technic suggested by Burkhardt (mentioned in these columns February 26, page 750) in 23 cases. The results were good as he shows by a tabulated record of the details, but still he writes to warn against the method as thrombosis is liable to develop at the point of the injection. The obstruction to the further infusion requiring the transference of the needle to another point in 2 cases was assumed to be an insignificant matter, as such are sometimes observed with saline infusion. But in one signs of embolism suddenly developed in the course of the intravenous anesthesia but proved transient. As there seemed to be some obstruction preventing further infusion, the vein was exposed above, when it was found that a fresh thrombus had developed, entirely occluding the vein, and a small clot was found in the tip of the needle. Küttner deplores this necessity for giving up this method of general anesthesia as it proved to have so many advantages for both the patient and the operator; the patients drop asleep as if in natural slumber. The three patients mentioned presented signs of infiltration in the lungs for some time afterward, suggesting that postoperative pulmonary complications may be of an embolic nature even with other methods of anesthesia.

Zentralblatt für Gynäkologie, Leipsic

February 12, XXXIV, No. 7, pp. 225-272

131 Manual Separation of the Placenta. (Manuelle Placentalösung.) H. Peters.
132 Plastic Restoration of the Abdominal Wall. (Zur "Bauchdeckenplastik" nach Weinhold.) M. Stolz.

133 Intraperitoneal Shortening of the Round Ligaments. (Fixatio ligamenti rotundi retrouterina.) W. Holleman.
134 Dilatation of the Cervix Uteri with Tents. (Zur Technik der Laminariadilatation.) O. Grasser.

Zentralblatt für innere Medizin, Leipsic

January 8, XXXI, No. 2, pp. 33-64

135 Inactivation of Complement by Shaking. (Ueber Schüttelinaktivierung der Komponenten des hämolytischen Systems.) A. Stühmer.

January 22, No. 4, pp. 89-112

136 Lipolytic Ferment. H. Pribram.

January 29, No. 5, pp. 113-152

137 Metabolic Findings, especially in regard to Purin Bodies, in a Case of Probable Thrombosis of the Hepatic Vein. (Verhalten der Purinkörper bei einem Falle von wahrscheinlicher Lebervenenthrombose.) E. Axisa.

February 5, No. 6, pp. 153-176

138 *Gastric Achylia. F. Schilling.

February 12, No. 7, pp. 177-200

139 Unreliability of Borchardt's Test for Levulose in the Urine. (Nachweis der Lävulose im Harn nach L. Borchardt.) F. Rosenberger.

138. **Defective Teeth as a Factor in Gastric Achylia.**—Schilling noticed that the teeth were defective in every one of his last series of 30 patients with gastric achylia, especially when there was concomitant diarrhea. The achylia follows mucous or atrophic gastritis, and this in turn is the result of irritation from imperfectly masticated food. The flora in the carious teeth, the lack of normal gastric acidity and of mastication permit an abnormal flora and irritation throughout the digestive tract.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 3, XXXI, No. 15, pp. 153-160

140 *Febrile Splenic Anemia in Children. (L'anemia splenica febbrile dell'infanzia.) G. de Gaetani Giunta.
141 *"Anguish Neuroses." (Note su alcuni casi di nevrosi di angoscia.) G. Calcagni.

140. **Febrile Splenic Anemia in Infants.**—Giunta has observed a number of cases of this disease; it affects mostly teething infants and may commence with gastrointestinal disturbances or the onset may resemble that of septic infection. Sometimes the striking pallor of the child is the first sign to attract attention. The disease does not seem to be contagious, although he has encountered it in brothers and sisters, generally with an interval of years. The urine does not show any modifications. The disease may last for twelve months or more and is generally fatal, although a few infants finally recover. No drugs proved effectual in his experience, but a change of climate in some cases brought relief.

141. **Anguish Neuroses.**—Calcagni has observed several cases of what is called an "anguish neurosis," which Freud explains as overirritability from overexcitement or abnormal excitement in the sexual sphere. Calcagni was also able to discover some sexual cause in each of his cases, some interference with the unloading of the psychic tension produced by somatic sexual excitement. This anguish neurosis is liable to be erroneously ascribed to hysteria or neurasthenia, but the latter is a fatigue while this neurosis is a distress. Some regard it as merely a syndrome induced by some injurious influence acting on the sympathetic system, but Freud's conception harmonizes strikingly with the facts in Calcagni's experience. The symptoms simulate angina pectoris in some cases, the patient waking at night with extreme depression, precordial pain, palpitations, tremor and dyspnea. These attacks continued to recur frequently in two of the cases reported until the girls' fiancés left town. In other cases nausea and dizziness were the main symptoms, the dizziness persisting for twenty-four hours at a time, the patients having the sensation that the floor was swaying and giving way under them. The attacks recurred so often that the vertigo became almost continuous, but all disturbances ceased at once when the practice of coitus interruptus was abandoned.

Policlinico, Rome

February 13, XVIII, No. 7, pp. 195-226

142 Encouraging Autoserotherapy in Pleurisy with Effusion. (Sull'autosieroterapia nelle pleuriti essudative.) F. Sarcinelli.

Riforma Medica, Naples

January 3, XXVI, No. 1, pp. 1-28

143 Splenomegaly, Cirrhosis of the Liver and Ascites. (Casi di splenomegalia di Banti.) E. Morandi.

January 10, No. 2, pp. 29-56

144 Lipolysis from Effusions. (Potere lipolitico dei liquidi di versamento.) C. Carginale.
145 Urethral Tuberculin Reaction in the Non-tuberculous. (L'uretroreazione nei soggetti non tubercolosi.) P. Tumminia.

January 17, No. 3, pp. 57-84

146 Pathogenesis of Pancreatic Cysts. (Patogenesi delle cisti del pancreas.) A. Pellegrini.
147 Glycogen in the Normal Mammalian Kidney. (Sulla presenza di glicogeno nel rene normale dei mammiferi.) F. Addarj.
148 Four Cases of Typhoid-Malarial Fever. (Associazione infettiva cosidetta tifo-malaria.) A. DeCortes and G. M. Marongiu.

January 24, No. 4, pp. 85-112

149 Physiopathology of the Spleen. (Fisiopatologia della Milza.) V. Patricelli.
150 Differentiation of Ruptured Right Tubal Pregnancy and Appendicitic Peritonitis. (E sempre possibile la diagnosi differenziale fra gravidanza tubarica destra rotta nel peritoneo e peritonite appendicitica?) A. Gasbarrini.
151 Pathologic Anatomy of Progressive Paralysis. (Contributo alla diagnosi anatomo-patologica della paralisi progressiva.) D. De Albertis.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

HIGH-FREQUENCY ELECTRIC CURRENTS IN MEDICINE AND DENTISTRY. Their Nature and Actions and Simplified Uses in External Treatments. By S. H. Monell, M.D., Professor of Static Electricity, International Correspondence Schools, 1898-1903. Cloth. Price, 84 net. Pp. 465, with 32 illustrations. New York: William R. Jenkins Co., 851 Sixth Avenue, 1910.

LES GREFFES OVARIENNES ENVISAGÉES AU POINT DE VUE DE LA PRATIQUE CHIRURGICALE. Etude critique, expérimentale et clinique. Par le Docteur Louis Sauvé, Prosecteur à la Faculté. Travail de la Clinique de M. le Professeur Quénu. Paper. Price, 3.50 francs. Pp. 96, with 4 illustrations. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1909.

SOY BEANS. By C. V. Piper, Agrostologist in Charge, and H. T. Nielsen, Scientific Assistant, Forage Crop Investigations, Bureau of Plant Industry. Farmers' Bulletin 372. U. S. Department of Agriculture. Paper. Pp. 26, with illustrations. Washington: [Superintendent of Documents] Government Printing Office, 1909.

PROCEEDINGS OF THE NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS. [Murray Galt Motter, Secretary, 1841 Summit Place, N. W., Washington, D. C.] Nineteenth Annual Convention, Atlantic City, N. J., June 7, 1909. Published by the Confederation Feb. 23, 1910. Paper. Pp. 96.

ALBUM OF THE SPAS AND MINERAL SPRINGS OWNED BY THE ROYAL PRUSSIAN BOARD OF DOMAINS. Described, by Order of the Minister of Agriculture, Domains and Forests, by Dr. Stern, Royal Inspector of Baths, Langenschwalbach. Translated by Dan. Heuser, London. Cloth. Pp. 166, with illustrations.

SOY BEAN VARIETIES. By Charles R. Ball, Agronomist, Grain Investigations. Bureau of Plant Industry Bulletin No. 98. U. S. Department of Agriculture. Issued May 27, 1907. Paper. Pp. 38, with illustrations. Washington [Superintendent of Documents]: Government Printing Office, 1907.

MANUAL ON TUBERCULOSIS. Its Cause, Prevention and Treatment. By Joseph A. Murphy, M.D., Medical Supervisor, U. S. Indian Service. Paper. Pp. 9, with illustrations. Washington: [Superintendent of Documents], Government Printing Office, 1910.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. [Dr. W. W. Potter, Secretary, 238 Delaware Ave., Buffalo, N. Y.] Vol. XXI, for Year 1908. Cloth. Price, $5. Pp. 488, with illustrations. New York: 1909.

HÉMATOLYSE ET HÉMATOGENÈSE, BACTÉRIOLYSE ET BACTÉRIOGENÈSE. Dr. G. Froin, Ancien Interne des Hôpitaux de Paris. Paper. Pp. 272. Price, 6 francs. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1910.

KLINISCHE IMMUNITÄTSLEHRE UND SERODIAGNOSTIK. Ein Lehrbuch für Aerzte. Von Dr. A. Wolff-Eisner. Paper. Price, 3.60 marks. Pp. 186, with 5 illustrations. Jena: Verlag von Gustav Fischer, 1910.

CONTROL OF BODY AND MIND. By Frances Gulick Jewett. Book Five, Gulick Hygiene Series. Cloth. Price, 50 cents. Pp. 269, with illustrations. Boston: Ginn & Co., 1910.

THE BODY AT WORK. By Frances Gulick Jewett. Book Four, Gulick Hygiene Series. Cloth. Price, 50 cents. Pp. 247, with illustrations. Boston: Ginn & Co., 1910.

GOOD HEALTH. By Frances Gulick Jewett. Book One, Gulick Hygiene Series. Cloth. Price, 40 cents. Pp. 172, with illustrations. Boston: Ginn & Co., 1910.

EMERGENCIES. By Charlotte Vetter Gulick. Book Two, Gulick Hygiene Series. Cloth. Price, 40 cents. Pp. 173, with illustrations. Boston: Ginn & Co., 1910.

TOWN AND CITY. By Frances Gulick Jewett. Book Three, Gulick Hygiene Series. Cloth. Price, 50 cents. Pp. 271, with illustrations. Boston: Ginn & Co., 1910.